

**IBM Cognos Report Studio:  
Author Professional Reports  
Fundamentals (v10.1)**  
Instructor Guide Volume 1  
**CourseCode: B5158**

*IBM® Cognos® Report Studio: Author  
Professional Reports Fundamentals (v10.1)*

*B5158*

*ERC: 2.0*

*Published March 2011*

Licensed Materials – Property of IBM

© Copyright IBM Corp. 2003, 2010

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM corp.

IBM, the IBM logo, ibm.com and Cognos are trademarks of international Business Machines Corp., registered in many jurisdictions worldwide.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

Java and all JavB-based trademarks and logos are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

*Other product and service names might be trademarks of IBM or other companies.*

# Contents

<b>PREFACE.....</b>	<b>IP-1</b>
CONTENTS.....	IP-3
COURSE OVERVIEW .....	IP-12
IMPORTANT COURSE CHANGES .....	IP-14
COURSE OUTLINE .....	IP-17
INSTRUCTIONAL MATERIALS .....	IP-24
GENERAL SETUP AND INSTRUCTOR PREPARATION.....	IP-26
DOCUMENT CONVENTIONS .....	IP-28
WORKSHOPS .....	IP-29
POWERPOINT TIPS .....	IP-30
VMWARE KEYBOARD SHORTCUTS.....	IP-31
GET THE CLASS STARTED .....	IP-33
POST-CLASS AGENDA .....	IP-34
SUBMIT FEEDBACK AND LOCATE ADDITIONAL PRODUCT INFORMATION...	IP-35
IBM PRODUCT HELP .....	IP-36
<b>SETUP INSTRUCTIONS .....</b>	<b>SI-1</b>
SETUP INSTRUCTIONS FOR IBM COGNOS REPORT STUDIO: AUTHOR	
PROFESSIONAL REPORTS FUNDAMENTALS (v10.1) .....	SI-3
ADDITIONAL BROWSER CONFIGURATION.....	SI-6
INSTALL DB2 EXPRESS VERSION 9.7 .....	SI-7
ENSURE INTERNET INFORMATION SERVICES IS INSTALLED .....	SI-8
INSTALL AND CONFIGURE APACHE DIRECTORY SERVER.....	SI-9
CREATE USERS IN THE NTLM AUTHENTICATION PROVIDER.....	SI-15
CONFIGURE THE WEB SERVER.....	SI-16
INSTALL AND CONFIGURE LOTUS DOMINO SERVER 8.5.1 AND	
LOTUS I NOTES .....	SI-17
CREATE THE IBM COGNOS BI CONTENT STORE AND SAMPLES	
DATABASE .....	SI-26
SET UP WEB ALIASES .....	SI-32
CONFIGURE IBM COGNOS BI .....	SI-33
DEPLOY IBM COGNOS BI SAMPLES AND STUDENT DATA .....	SI-36

ADD DATA SOURCES .....	SI-38
RESTRICT ACCESS TO ADMINISTRATIVE TOOLS .....	SI-40
ADD SPECIFIC USERS TO GROUPS AND RESTRICT ACCESS TO OTHER GROUPS.....	SI-41
CREATE GROUPS IN THE COGNOS NAMESPACE AND ADD USERS TO GROUPS.....	SI-42
ASSIGN THE DRILL THROUGH ASSISTANT CAPABILITY TO THE REPORT ADMINISTRATORS ROLE.....	SI-43
ENABLE THE ALLOW EXTERNAL DATA CAPABILITY ON PACKAGES.....	SI-44
ALLOW EXTERNAL DATA CAPABILITIES FOR ROLES.....	SI-45
MODIFY THE ASSIGNSTAFF STORED PROCEDURE IN THE GS_DB DATABASE .....	SI-46
RUN THE B5159_EVENT_STUDIO_MODIFY_GOSALES.TXT SCRIPT .....	SI-47
ENSURE SIMPLE FILE SHARING IS OFF.....	SI-48
<b>INTRODUCTION.....</b>	<b>INTRO-1</b>
COURSE OBJECTIVES .....	INTRO-3
ADDITIONAL TRAINING.....	INTRO-7
<b>OVERVIEW OF IBM COGNOS BI .....</b>	<b>1-1</b>
OBJECTIVES .....	1-3
IBM INFORMATION ON DEMAND .....	1-4
IBM COGNOS BI AND FPM.....	1-5
IBM COGNOS BI COMPONENTS.....	1-6
IBM COGNOS BI ARCHITECTURE (HIGH LEVEL).....	1-7
IBM COGNOS BI GROUPS AND ROLES.....	1-8
DEMO 1: EXPLORE IBM COGNOS BI.....	1-9
EXTEND IBM COGNOS BI.....	1-49
SUMMARY .....	1-50



<b>INTRODUCTION TO THE REPORTING APPLICATION.....</b>	<b>2-1</b>
OBJECTIVES .....	2-3
WHAT IS REPORT STUDIO? .....	2-4
EXPLORE THE ENVIRONMENT .....	2-5
EXAMINE THE EXPLORER BAR.....	2-6
EXPLORE REPORT TEMPLATES .....	2-7
GENERATE THE REPORT.....	2-8
CHANGE THE PROPERTIES OF AN OBJECT .....	2-9
DEMO 1: CREATE A SIMPLE REPORT.....	2-10
DIMENSIONALLY-MODELED AND MULTI-DIMENSIONAL DATA SOURCES.....	2-16
DEMO 2: CREATE A REPORT FROM A DIMENSIONALLY-MODELED RELATIONAL DATA SOURCE.....	2-17
DEMO 3: CREATE A REPORT FROM A MULTI-DIMENSIONAL DATA SOURCE.....	2-21
SUMMARY .....	2-23
WORKSHOP 1: CREATE A RETURNED ITEMS REPORT .....	2-24
<b>CREATE LIST REPORTS .....</b>	<b>3-1</b>
OBJECTIVES .....	3-3
EXAMINE LIST REPORTS .....	3-4
GROUP DATA .....	3-5
FORMAT LIST COLUMNS .....	3-6
INCLUDE LIST HEADERS AND FOOTERS.....	3-7
DEMO 1: ENHANCE A LIST REPORT .....	3-8
UNDERSTAND FACT/MEASURE DATA.....	3-18
UNDERSTAND AGGREGATE DATA .....	3-19
UNDERSTAND DIFFERENCE IN AGGREGATION.....	3-20
DEMO 2: EXPLORE DATA AGGREGATION .....	3-21
USE SHARED DIMENSIONS TO CREATE MULTI-FACT QUERIES.....	3-27
DEMO 3: CREATE A MULTI-FACT QUERY IN A LIST REPORT.....	3-28
ADD REPEATED INFORMATION TO REPORTS .....	3-33
DEMO 4: CREATE A MAILING LIST REPORT.....	3-34
SUMMARY .....	3-39
WORKSHOP 1: CREATE AND FORMAT A LIST REPORT .....	3-40

<b>FOCUS REPORTS USING FILTERS.....</b>	<b>4-1</b>
OBJECTIVES .....	4-3
CREATE FILTERS .....	4-4
FILTER YOUR DATA WITH ADVANCED DETAIL FILTERS .....	4-5
DEMO 1: APPLY FILTERS TO A REPORT.....	4-6
DETERMINE WHEN TO APPLY A FILTER WITH AGGREGATION .....	4-12
DEMO 2: APPLY A DETAIL FILTER ON FACT DATA TO A REPORT .....	4-13
FILTER YOUR DATA WITH SUMMARY FILTERS.....	4-23
DEMO 3: APPLY A SUMMARY FILTER TO A REPORT .....	4-24
APPLY PRE-DEFINED SOURCE FILTERS .....	4-26
SUMMARY .....	4-27
WORKSHOP 1: CREATE A REPORT FOCUSED ON THE 2006 SALES FOR EACH COUNTRY AND ORDER METHOD .....	4-28
<b>CREATE CROSSTAB REPORTS.....</b>	<b>5-1</b>
OBJECTIVES .....	5-3
CREATE A CROSSTAB REPORT .....	5-4
ADD MEASURES TO CROSSTAB REPORTS .....	5-5
DEMO 1: CREATE A SIMPLE CROSSTAB REPORT.....	5-6
CREATE COMPLEX CROSSTAB REPORTS.....	5-9
CREATE CROSSTAB NODES AND CROSSTAB NODE MEMBERS .....	5-10
DEMO 2: CREATE COMPLEX CROSSTAB REPORTS.....	5-11
FORMAT CROSSTAB REPORTS.....	5-18
ADD UNRELATED ITEMS TO CROSSTAB EDGES .....	5-19
DEMO 3: PRESENT UNRELATED ITEMS IN A CROSSTAB USING A DISCONTINUOUS CROSSTAB .....	5-20
SUMMARY .....	5-24
WORKSHOP 1: SORT AND FORMAT A CROSSTAB REPORT .....	5-25

<b>PRESENT DATA GRAPHICALLY .....</b>	<b>6-1</b>
OBJECTIVES .....	6-3
CREATE A CHART REPORT .....	6-4
CREATE CHARTS CONTAINING PEER AND NESTED ITEMS .....	6-5
CREATE AND REUSE CUSTOM CHART PALETTES .....	6-6
ADD DATA-DRIVEN BASELINES AND MARKERS TO CHARTS .....	6-7
DEMO 1: CREATE AND FORMAT CHART REPORTS .....	6-8
COMPARE VALUES USING GAUGE CHARTS .....	6-22
DEMO 2: CREATE A GAUGE CHART REPORT .....	6-23
DISPLAY ITEMS ON SEPARATE AXES .....	6-29
DEMO 3: SHOW THE SAME DATA GRAPHICALLY AND NUMERICALLY .....	6-30
CUSTOMIZE CHARTS .....	6-37
DEMO 4: CREATE AND CUSTOMIZE A BUBBLE CHART TO COMPARE MULTIPLE MEASURES (OPTIONAL) .....	6-38
SUMMARY .....	6-43
WORKSHOP 1: CREATE A DASHBOARD REPORT .....	6-44
<b>FOCUS REPORTS USING PROMPTS .....</b>	<b>7-1</b>
OBJECTIVES .....	7-3
EXAMINE PARAMETERS AND PROMPTS .....	7-4
DEMO 1: CREATE A PROMPT BY ADDING A PARAMETER .....	7-5
IDENTIFY PROMPT TYPE .....	7-8
DEMO 2: ADD A VALUE PROMPT TO A REPORT .....	7-9
ADD PAGES TO A REPORT .....	7-14
CREATE A PROMPT PAGE .....	7-15
DEMO 3: ADD SELECT & SEARCH PROMPT TO A REPORT .....	7-16
CREATE A CASCADING PROMPT .....	7-21
DEMO 4: CREATE A CASCADING PROMPT .....	7-22
SUMMARY .....	7-27
WORKSHOP 1: FOCUS A REPORT USING VALUE PROMPTS (OPTIONAL) .....	7-28

<b>EXTEND REPORTS USING CALCULATIONS.....</b>	<b>8-1</b>
OBJECTIVES .....	8-3
DERIVE ADDITIONAL INFORMATION FROM THE DATA SOURCE .....	8-4
ADD RUN-TIME INFORMATION TO YOUR REPORT.....	8-5
ADD DATE/TIME FUNCTIONS TO YOUR REPORT .....	8-6
ADD STRING FUNCTIONS TO YOUR REPORT .....	8-7
DEMO 1: ADD CALCULATIONS TO A REPORT .....	8-8
DISPLAY PROMPT SELECTIONS IN REPORT TITLES .....	8-12
DEMO 2: DISPLAY PROMPT SELECTIONS IN THE REPORT TITLE .....	8-13
DEMO 3: CREATE A REPORT THAT BREAKS OUT REVENUE	
CONTRIBUTION BY PRODUCT LINE.....	8-19
SUMMARY .....	8-25
WORKSHOP 1: SALES PERCENT BY SALES REP AND COUNTRY .....	8-26
<b>PRESENT DATA USING MAPS .....</b>	<b>9-1</b>
OBJECTIVES .....	9-3
DISPLAY DATA USING MAP REPORTS: OVERVIEW.....	9-4
ADD DATA TO MAP REPORTS.....	9-5
SPECIFY WHETHER MAP FILE DATA MUST MATCH YOUR DATA SOURCE.....	9-6
DEMO 1: CREATE AND FOMAT A MAP REPORT.....	9-7
FOCUS MAP INFORMATION USING ZOOM CAPABILITIES .....	9-14
DEMO 2: ADD ZOOM CAPABILITY TO A MAP.....	9-15
SUMMARY .....	9-19
<b>ANALYZE DATA USING STATISTICAL REPORTS.....</b>	<b>10-1</b>
OBJECTIVES .....	10-3
INTRODUCTION TO IBM STATISTICS.....	10-4
DISCUSS STATISTICAL REPORT TYPES .....	10-5
EXAMINE DESCRIPTIVE STATISTICS .....	10-6
EXAMINE NORMALITY AND RELATED TERMS .....	10-7
DEMO 1: CREATE A DESCRIPTIVE STATISTICS REPORT .....	10-8
DEMO 2: CREATE STATISTICAL CHARTS .....	10-15
SUMMARY .....	10-20
WORKSHOP 1: CREATE A DESCRIPTIVE AND STATISTICAL CHART REPORT	10-21

<b>USE ADDITIONAL REPORT BUILDING TECHNIQUES.....</b>	<b>11-1</b>
OBJECTIVES .....	11-3
ENHANCE REPORT DESIGN .....	11-4
ADD OBJECTS.....	11-6
ORGANIZE OBJECTS USING TABLES .....	11-7
BREAK A REPORT INTO SECTIONS.....	11-8
CONVERT A LIST TO A CROSSTAB.....	11-9
REUSE OBJECTS WITHIN THE SAME REPORT.....	11-10
DEMO 1: REUSE OBJECTS WITHIN THE SAME REPORT .....	11-11
SHARE LAYOUT COMPONENTS AMONG SEPARATE REPORTS.....	11-16
DEMO 2: REUSE LAYOUT COMPONENTS IN A DIFFERENT REPORT .....	11-17
CREATE A TEMPLATE REPORT TO USE WITH ANY PACKAGE .....	11-24
HANDLE REPORTS WITH NO DATA .....	11-25
DEMO 3: EXPLORE OPTIONS FOR REPORTS THAT CONTAIN NO DATA .....	11-26
SUMMARY .....	11-34
WORKSHOP 1: ANALYZE PRODUCT QUANTITIES SOLD BY MONTH.....	11-35
<b>CUSTOMIZE REPORTS WITH CONDITIONAL FORMATTING .....</b>	<b>12-1</b>
OBJECTIVES .....	12-3
CHANGE DISPLAYS BASED ON CONDITIONS .....	12-4
3 STEPS FOR CONDITIONAL FORMATTING .....	12-5
STEP 1. CREATE A VARIABLE.....	12-6
STEP 2. ASSIGN THE VARIABLE TO AN OBJECT IN THE REPORT .....	12-8
STEP 3. APPLY FORMATTING TO OBJECT BASED ON CONDITION VALUE ....	12-10
DEMO 1: CREATE A MULTILINGUAL REPORT .....	12-11
DEMO 2: HIGHLIGHT EXCEPTIONAL DATA .....	12-17
CONDITIONALLY RENDER OBJECTS IN REPORTS .....	12-21
DEMO 3: CREATE A REPORT WITH A CONDITIONALLY RENDERED COLUMN (OPTIONAL) .....	12-22
CONDITIONALLY FORMAT ONE CROSSTAB MEASURE BASED ON ANOTHER .....	12-25
DEMO 4: CONDITIONALLY FORMAT ONE CROSSTAB MEASURE BASED ON ANOTHER.....	12-26
SUMMARY .....	12-29
WORKSHOP 1: DISTINGUISH YEARLY DATA.....	12-30

**DRILL-THROUGH FROM ONE REPORT TO ANOTHER..... 13-1**

OBJECTIVES .....	13-3
LET USERS NAVIGATE TO RELATED DATA IN IBM COGNOS BI.....	13-4
SET UP DRILL-THROUGH ACCESS FROM A REPORT.....	13-5
SPECIFY THE VALUES PASSED TO TARGET PARAMETERS .....	13-6
DEMO 1: LET USERS DRILL-THROUGH FROM A REPORT .....	13-7
LET USERS NAVIGATE THROUGH MULTIPLE REPORTS .....	13-12
DEMO 2: LET USERS NAVIGATE THROUGH MULTIPLE REPORTS .....	13-13
SUMMARY .....	13-25
WORKSHOP 1: DRILL-THROUGH FROM ONE REPORT TO ANOTHER .....	13-26

**DRILL-THROUGH DEFINITIONS..... 14-1**

OBJECTIVES .....	14-3
LET USERS NAVIGATE TO RELATED DATA IN IBM COGNOS.....	14-4
SET UP DRILL-THROUGH ACCESS FROM A REPORT.....	14-5
PACKAGE-BASED DRILL THROUGH .....	14-6
SPECIFY THE VALUES PASSED TO TARGET PARAMETERS .....	14-7
STEPS TO SET UP A PACKAGE-BASED DRILL-THROUGH DEFINITION.....	14-8
LIMIT THE ITEMS THAT USERS CAN DRILL THROUGH FROM .....	14-9
MEASURE-BASED SCOPE.....	14-10
DRILL THROUGH ASSISTANT .....	14-11
DEMO 1: SET UP DRILL-THROUGH ACCESS FOR A PACKAGE .....	14-12
DYNAMIC DRILL-THROUGH.....	14-19
DYNAMIC DRILL THROUGH - MATCHING CRITERIA.....	14-20
DEMO 2: CONFIGURE DYNAMIC DRILL THROUGH AND SET MEASURE SCOPE.....	14-21
SUMMARY .....	14-29
WORKSHOP 1: CONFIGURE DYNAMIC DRILL THROUGH.....	14-30

<b>ENHANCE REPORT LAYOUT .....</b>	<b>15-1</b>
OBJECTIVES .....	15-3
VIEW THE STRUCTURE OF THE REPORT .....	15-4
FORCE PAGE BREAKS IN REPORTS .....	15-5
DEMO 1: CREATE A REPORT STRUCTURED ON DATA ITEMS .....	15-6
HORIZONTAL PAGINATION.....	15-12
ADDING HORIZONTAL PAGE NUMBERS.....	15-13
DEMO 2: FORMAT A REPORT FOR HORIZONTAL VIEWING.....	15-14
MODIFY STRUCTURES.....	15-19
DEMO 3: CREATE A CONDENSED LIST REPORT .....	15-20
CHANGE PDF PAGE ORIENTATION TO SUIT REPORT OBJECTS.....	15-25
SET PDF SECURITY OPTIONS.....	15-26
DEMO 4: CHANGE A PDF PAGE FROM PORTRAIT TO LANDSCAPE ORIENTATION.....	15-27
FORMAT OBJECTS ACROSS A REPORT .....	15-32
DEMO 5: FORMAT OBJECTS ACROSS A REPORT (INSTRUCTOR ONLY) .....	15-33
SUMMARY .....	15-37
WORKSHOP 1: ANALYZE RETAILER CONTACTS BY COUNTRY .....	15-38



## Course Overview

### Course Overview

IBM Cognos Report Studio: Author Professional Reports Fundamentals (v10.1) is a three-day, instructor-led course. It is designed for report authors to learn report building techniques using relational data models, and ways of enhancing, customizing, and managing professional reports. Attendees will participate in hands-on demos and workshops that illustrate key concepts while learning how to use the product

### Intended Audience

Professional Report Authors

### Topics Covered

Topics covered in this course include:

- Explore Report Studio, different report types (list, crosstab, chart, map, statistics)
- Create and format reports using grouping, headers, footers, and other formatting options
- Focus reports by filtering data and using prompts
- Add value to your reports using calculations and additional report building techniques
- Enhance reports with advanced formatting and exceptional data highlighting
- Author reports through query models
- Set up drill-through access and create drill-through reports



## Course Prerequisites

Participants should have:

- Knowledge of your business requirements
- Experience using the Windows operating system
- Experience using a Web browser
- IBM Cognos BI: Cognos Connection for Consumers (v10.1) WBT

## Important Course Changes

### New features for B5158

#### General Changes

- Implement new IBM Cognos 10.1 features
- Addition of Instructor Lead Online (ILO) interactions
- New module added (Module 10: Analyze Data Using Statistical Reports) est. time 30 min.
- Module 15 (Manage Content in IBM Cognos Connection) has been removed. Reference the WBT: Cognos Connection for Consumers (v10.1)
- Removal of Express Reporting mode.
- All data item naming have been conformed for all sample data sources.
- Container Selector function allows selection of entire data container (charts do not have this function) with out the need of using Select Ancestor.
- All modules have been updated to use the Container Selector function instead of Select Ancestor where needed.

#### Module 01: Overview of IBM Cognos BI

- Inclusion of IBM Cognos Business and IBM Cognos Business Insight content.
- Increased time to 30 min.

#### Module 02: Introduction to the Reporting Application

- Removal of Express reporting mode and associated demos
- Introduction of new Statistical reporting template

## **Module 03: Create List Reports**

- Added Group header to Demo 1
- New slides
  - Understand Aggregate Data
  - Understand Difference in Aggregation

## **Module 06: Present Data Graphically**

- New Charting Engine – new chart with more sophisticated charting capabilities

## **Module 07: Focus Reports Using Prompts**

- Reworked Demo 3 with a new start file.
- Demo 3 now shows how to delete a value prompt and add a search and select prompt

## **Module 08: Extend Reports Using Calculations**

- Workshop 1 now has a new business scenario that returns viable data.

## **Module 10: Analyze Data Using Statistical Reports**

- Objectives
  - Discuss statistical report types
  - Examine descriptive statistics
  - Explore statistical charts (histogram, box-whisker plot)
- 2 Demos and 1 Workshop

## **Module 12: Customize Reports with Conditional Formatting**

- New slide
  - Step 2. Assign the Variable to a Object in the Report

## **Module 13: Drill-Through from one Report to Another**

- Increased time to 45 min.

## **Module 14: Drill-Through Definitions**

- Demo 1 and Workshop 1 now use IBM Cognos Business Insight to test the drill-through

## **Module 15: Enhance Report layout**

- Increased time to 2 hr.

## Course Outline

The following table outlines the high-level topics for each module, and the number of slides, demos and workshops included, as well as the estimated teaching time.

Overview of IBM Cognos BI				
Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>Describe IBM Cognos Business Intelligence (BI) and Financial Performance Management (FPM)</li> <li>describe IBM Cognos BI components</li> <li>describe IBM Cognos architecture at a high level</li> <li>define IBM Cognos groups and roles</li> <li>explain how to extend IBM Cognos BI</li> </ul>	10	1	0	30 min

## Introduction to the Reporting Application

Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>• examine Report Studio and its interface</li> <li>• explore different report types (New report type – Statistics)</li> <li>• create a simple, sorted, and formatted report</li> <li>• explore how data items are added to queries</li> </ul>	14	3	1	45 mins.

## Create List Reports

Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>• format, group, and sort list reports</li> <li>• describe options for aggregating data</li> <li>• create a multi-fact query</li> <li>• create a report with repeated data</li> </ul>	17	4	1	1 hr.

<b>Focus Reports Using Filters</b>				
Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>• create filters to narrow the focus of reports</li> <li>• examine detail and summary filters</li> <li>• determine when to apply filters on aggregate data</li> </ul>	11	3	1	1 hrs

<b>Create Crosstab Reports</b>				
Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>• format and sort crosstab reports</li> <li>• convert a list to a crosstab</li> <li>• create complex crosstabs using drag and drop functionality</li> <li>• create crosstabs using unrelated data items</li> </ul>	13	3	1	1 hr

## Present Data Graphically

Topics	Slides	Demos	Workshops	Est. Time
<p>New charting engine –new chart with more sophisticated charting capabilities</p> <ul style="list-style-type: none"> <li>• create charts containing peer and nested columns</li> <li>• present data using new chart type options</li> <li>• add context to charts</li> <li>• create and reuse custom chart palettes</li> <li>• present key data in a single dashboard report</li> </ul>	16	5	1	1.5 hrs

## Focus Reports Using Prompts

Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>• identify various prompt types</li> <li>• use parameters and prompts to focus data</li> <li>• search for prompt types</li> <li>• customize prompts to facilitate users' choices</li> <li>• navigate between pages</li> <li>• display users' prompt selections in the report</li> </ul>	13	4	1	1 hr.



## Extend Reports Using Calculations

Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>• create calculations based on data in the data source</li> <li>• add run-time information to the reports</li> <li>• create expressions using functions</li> </ul>	12	3	1	1 hr

## Present Data Using Maps

Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>• present data using map reports</li> <li>• navigate to another level within a map</li> </ul>	9	2	0	45 mins

## Analyze Data Using Statistical Reports

Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>• discuss statistical report types</li> <li>• examine descriptive statistics</li> <li>• explore statistical charts (histogram, box-whisker plot)</li> </ul>	17	2	1	30 mins

## Use Additional Report Building Techniques

Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>reuse objects within the same report</li> <li>share layout components among separate reports</li> <li>discuss report templates</li> <li>add pages to a report</li> <li>choose options to handle reports with no available data</li> </ul>	17	3	1	1.5 hrs

## Customize Reports with Conditional Formatting

Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>create multi-lingual reports</li> <li>highlight exceptional data</li> <li>show and hide data</li> <li>conditionally render objects in reports</li> </ul>	17	4	1	1 hr

## Drill-Through from One Report to Another

Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>let users navigate from a specific report to a target report</li> <li>pass parameter values to filter the data in drill-through targets</li> </ul>	10	2	1	45 mins

## Drill-Through Definitions

Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>• enable users to navigate to related data in IBM Cognos BI</li> <li>• parameter-driven drill through vs. dynamic drill through</li> <li>• steps to enable drill-through access for a package</li> <li>• limit the items that users can drill-through from (set scope)</li> <li>• set a measure as the scope</li> <li>• drill Through Assistant</li> </ul>	16	2	1	1 hr

## Enhance Report Layout

Topics	Slides	Demos	Workshops	Est. Time
<ul style="list-style-type: none"> <li>• force page breaks in reports</li> <li>• modify existing report structures</li> <li>• apply horizontal formatting</li> <li>• specify print options for PDF reports</li> <li>• format data and report objects</li> </ul>	17	5	1	1.5 hrs

# Instructional Materials

## Student Guide

The Student Guide contains material that helps to explain features of the product, along with the presentation slides that are presented by the instructor. Student demos and workshops are incorporated in the course to enrich the learning experience through hands-on practice.

## Demos

Demos appear after covering one or more topics or features of the application. While not every product function is demonstrated, participants work with the more important and complex features through a series of tasks. Demo tasks contain a number of steps related to a specific action or feature of the product.

## Workshops

In most of the modules, a supplementary workshop is included. If participants followed the concepts in class without difficulties, they can probably complete the workshop with no additional information. The second section for each workshop contains a task table that identifies each task, where to work in the application, and any applicable hints to help the participants. The third section of the workshop contains screen captures of the expected results. The fourth section contains a step-by-step solution to the workshop. Participants may want to follow these instructions if they are not able to complete the workshop or if they require a little more practice with the application.

## **Instructor Guide**

The Instructor Guide contains the same content presented in the Student Guide, along with additional notes to supplement and add value to the lecture. The information can be generic, non-technical information, such as multiple ways to perform the same command or a more in-depth discussion of a topic. It may also be used to address more technical questions from participants or as supplementary technical discussion, at the discretion of the instructor. It helps to provide the appropriate level of information to a specific audience.

## **Instructor Slides**

B5158\_SHOW.zip contains the following presentations for each module of the course as presented in the Student Guide:

- **StartB5158.pps**
- **IntroB5158.pps**
- **01-Overview\_of\_IBM\_Cognos\_BI.pps**
- **02-Intro\_to\_the\_Report\_Application.pps**
- **03-Create\_List\_Reports.pps**
- **04-Focus\_Reports\_Using\_Filters.pps**
- **05-Create\_Crosstab\_Reports.pps**
- **06-Present\_Data\_Graphically.pps**
- **07-Focus\_Reports\_Using\_Prompts.pps**
- **08-Extend\_Reports\_Using\_Calc.pps**
- **09-Present\_Data\_Using\_Maps.pps**
- **10-Analyze\_Data\_Using\_Statiscical\_Reports.pps**
- **11-Use\_Additional\_Report\_Building\_Techiques.pps**
- **12-Customize\_Conditional\_Formatting.pps**
- **13-Drill-Through\_from\_One\_Report\_to\_Another.pps**
- **14-Drill-Through\_Definitions.pps**
- **15-Enhance\_Report\_Layout.pps**

## General Setup and Instructor Preparation

### Pre-Class Agenda

To ensure that the class runs smoothly, you should know the answers to the following questions. If you need help in obtaining answers, contact the customer or customer's sales representative (if the course is scheduled for a client site), or the local office responsible for course logistics.

- Who is the contact person for class setup?
- What is the classroom setup? Is there a white board? Is there a flip chart? Is there a computer for the instructor, a PC viewer, overhead projector, and screen?
- Will the physical environment be set up prior to your arrival (product loaded and PowerPoint files on the computer)?
- What time does the class start?
- What hours are available for accessing the teaching site, copying the files to the hard disk, tuning the color on the PC viewer, and so on?
- What IBM office is responsible for sending the Student Guides?
- If the course has been previously taught on the computers you are using, have the Preferences been reset to their defaults, and have student files been deleted?

## **Prepare to Teach**

After you have configured the instructor and student computers, consider the following:

- Run through at least one module in a classroom with a PC viewer.
- Run through the full course at least once on a computer.
- Make sure you complete each of the demos before teaching the course so that you become familiar with each step required.
- Have a set of product reference manuals in the classroom.
- Make sure that there is a Student Guide for each participant.

## Document Conventions

Conventions used in this guide follow Microsoft Windows application standards, where applicable. As well, the following conventions are observed:

### **Bold**

Bold style is used in demo and workshop step-by-step solutions to indicate either:

- actionable items

(Point to **Sort**, and then click **Ascending**.)

- text to type or keys to press

(Type **Sales Report**, and then press **Enter**.)

- UI elements that are the focus of attention

(In the **Format** pane, click **Data**)

### *Italic*

Used to reference book titles.

### CAPITALIZATION

All file names, table names, column names, and folder names appear in this guide exactly as they appear in the application.

To keep capitalization consistent with this guide, type text exactly as shown.



# Workshops

## Workshop Format

Workshops are designed to allow you to work according to your own pace. The workshops are structured as follows:

### The Business Question Section

The first page of each workshop presents a business-type question followed by a series of steps. These steps provide additional information to help guide you through the workshop. Within each step, there may be numbered questions relating to the step. Solve the tasks by using the skills you learned in this module and in previous ones. If you need more assistance, you can refer to the Task Table section that provides more detailed instruction.

### The Task Table Section

The second page of the workshop is a Task Table that presents the question as a series of numbered tasks to be accomplished. The first column in the table states the task to be accomplished. The second column, "Where to Work", indicates the area of the product to work in. Finally, the third column provides some hints that may help you complete the workshop. If you need more assistance to complete the workshop, please refer to the Step-by-Step Instructions at the end of the workshop.

### The Workshop Results Section

This section will contain a screen capture(s) of interim or final results and/or answers to the questions asked in the Business Question section.

### The Step-by-Step Section

The Step-by-Step instructions for completing all of the tasks are located at the end of the workshop following the Workshop Results section. Each task in the Task Table is expanded into numbered steps, scripted like the demos.

## PowerPoint Tips

Here are valuable keyboard commands you can use to improve your presentation.

Command	Key(s)
Advance to next slide	Left-click, Page Down, Space, N, Right or Down Arrow, right-click/Next, Enter
Return to previous slide	Backspace, Page Up, P, Left or Up Arrow, right-click/Previous
Change pointer to a pen	Right-click/Pen or Ctrl+P
Erase drawings on screen	E
Make the screen white	W or ',' (toggle to restore)
Make the screen black	B or '.' (toggle to restore)
Help	?
End the slide show	Esc, Ctrl+Break, '-'
Move between PowerPoint and the product	Alt+Tab or click the application name on the status bar

You can also jump to a specific slide by typing its slide number and pressing the Enter key. However the slide number is not the same as the printed page number because a page may be built from several slides to produce an animation sequence.

### Important Tips:

- A page containing an animation slide (multiple clicks to complete the slide) will also include an Instructor Guide note indicating the number of clicks needed to complete the slide.

## VMware Keyboard Shortcuts

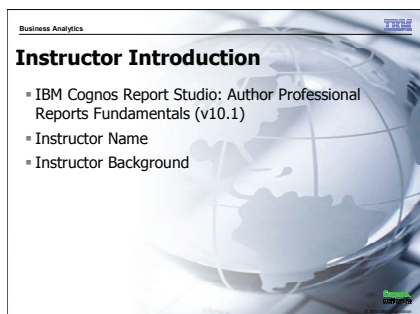
Below is a list of shortcuts that can be used when in a VM image.

Shortcut	Action
Ctrl-B	Power on.
Ctrl-E	Power off.
Ctrl-R	Reset the power.
Ctrl-Z	Suspend.
Ctrl-N	Create a new virtual machine.
Ctrl-O	Open a virtual machine.
Ctrl-F4	Close the summary/console view for the selected virtual machine. A confirmation dialog appears only if the virtual machine is powered on.
Ctrl-D	Edit the virtual machine's configuration.
Ctrl-G	Grab input from keyboard and mouse.
Ctrl-P	Edit preferences.
Ctrl-Alt-Enter	Go to full screen mode.
Ctrl-Alt	Return to normal (windowed) mode.
Ctrl-Alt-Tab	Switch among open virtual machines while mouse and keyboard input are grabbed.
Ctrl-Tab	Switch among open virtual machines while mouse and keyboard input are not grabbed. VMware Workstation must be the active application.

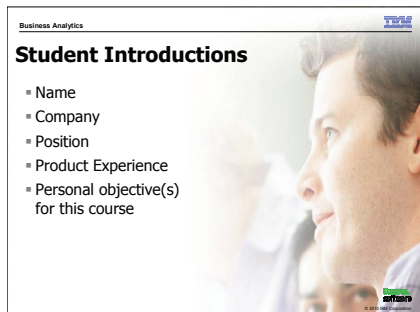
Shortcut	Action
Ctrl-Shift-Tab	Switch among open virtual machines while mouse and keyboard input are not grabbed. VMware Workstation must be the active application.
Ctrl-Alt-Fx	<p>Linux hosts: Switch among open virtual machines while using full screen mode. Fx is a function key corresponding to the virtual machine you want to use. The key combination to use for a virtual machine is shown in the VMware Workstation title bar when that virtual machine is active and in normal (windowed) mode.</p> <p>Windows hosts: For an additional similar functionality, see Using Full Screen Switch Mode.</p>

## Get the Class Started

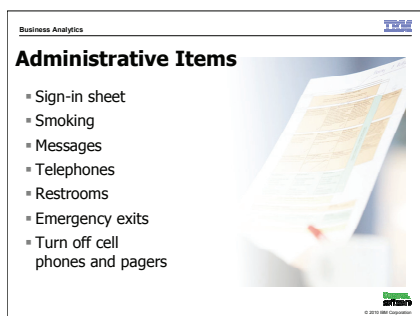
Welcome participants to the course. Use the slide show, STARTB5158.PPT, to introduce yourself, the participants, and the agenda for the training (optional).



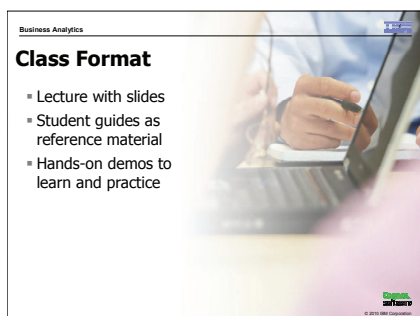
Use this slide to welcome the participants to the course, to introduce yourself, and to mention your background (for example, how long you have been teaching the course, your teaching experience overall, how long you have been working with the product, and so on). Make sure you have customized the slide ahead of time.



Have the participants take turns introducing themselves with respect to the items listed on this slide. The intent of the slide is to act as an icebreaker and to encourage participation.



Use this slide to go through the list of administrative items that participants often ask about.



Use this slide to explain the class format and emphasize that participants are encouraged to actively perform the hands-on demos while following along with the instructor. Mention that the Student Guide contains copies of the slides and further supporting notes for the participants to use as reference material in the future.

## Post-Class Agenda

- Have participants complete the Course Evaluation forms.
- Hand out certificates.
- Leave the classroom clean.
- If you brought any hardware or course media, take them with you when you leave. Erase any files copied to the hard disks of the computers in the classroom. Change the Preferences back to their initial settings.
- Complete the Instructor Feedback form, and return it to the Education Coordinator. Ensure that the Coordinator receives the Course Evaluation forms.
- If you are at a customer site, thank the course administrator by letter.
- List any outstanding questions, and ensure that participants receive answers in writing.
- Report any sales leads to your sales representative.
- Make notes for yourself about what went well during the course and what needs improvement. When you are preparing for your next teach, you can refer to these.

## **Submit Feedback and Locate Additional Product Information**

### **Submit Feedback**

Your feedback is important and valuable. We are interested in your comments or questions. If you have feedback for a course, you may directly submit it to our online database using the following link: <http://sottgesops.ottawa.ibm.com/feedback/default.htm>. The link to this feedback database can also be found in the Instructor Support section of the IBM Cognos Education wiki.

You may also send general comments or concerns to Global Education Services at [Cognos.ges@ca.ibm.com](mailto:Cognos.ges@ca.ibm.com).

In the Instructor Support area on the IBM Cognos Education wiki, your suggested course corrections and course-related supplementary information (e.g., additional demos you use, diagrams you created) will be posted within the Instructor Zone under Course Updates & Corrections, and teaching tips and techniques will be posted within the Instructor Zone under Share Your Knowledge. This gives other worldwide instructors immediate use of the information. Technical course developers will also use this information when the course is updated.

Access the Instructor Support Community on the IBM Cognos Education wiki at

<https://w3.tap.ibm.com/w3ki07/display/IBMCogEd/Instructor+Support>. You will also find additional course information (e.g., course release status or course development templates) in the Instructor Support Community, which you may find useful when preparing for courses.

Suggestions for significant course enhancements will be reviewed for possible implementation in future course updates.

## IBM Product Help

Help type	When to use	Location
Task-oriented	You are working in the product and you need specific task-oriented help.	<i>IBM Product</i> - Help link
Books for Printing (.pdf)	<p>You want to use search engines to find information. You can then print out selected pages, a section, or the whole book.</p> <p>Use Step-by-Step online books (.pdf) if you want to know how to complete a task but prefer to read about it in a book.</p> <p>The Step-by-Step online books contain the same information as the online help, but the method of presentation is different.</p>	Start/Programs/ <i>IBM Product</i> /Documentation
IBM on the Web	<p>You want to access any of the following:</p> <ul style="list-style-type: none"> <li>• Services and Training Web site</li> <li>• Online support</li> <li>• IBM Web site</li> </ul>	<p><a href="http://www.ibm.com/Cognos/services">http://www.ibm.com/Cognos/services</a></p> <p><a href="http://www.ibm.com/Cognos/support">http://www.ibm.com/Cognos/support</a></p> <p><a href="http://www.ibm.com">http://www.ibm.com</a></p>

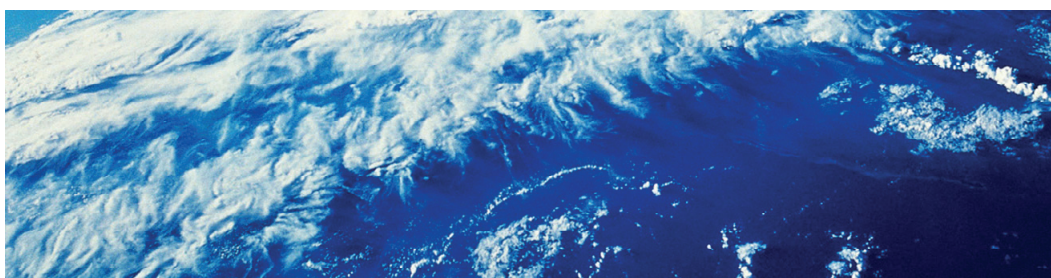




---

# Setup Instructions

IBM Cognos Report Studio: Author Professional Reports  
Fundamentals (v10.1)



**Business Analytics**

© 2010 IBM Corporation



# Setup Instructions for IBM Cognos Report Studio: Author Professional Reports Fundamentals (v10.1)

## Instructor and Student Computer Checklist

Use the following checklist when configuring both the instructor and student computers. The total time to set up the instructor and student computers is listed in the table.

Setup	Page	Est. Time	Complete
Microsoft Windows XP SP3			
Microsoft Internet Explorer 7.0 For required browser settings, see the section title "Configure Web Browsers" in the IBM Cognos Business Intelligence Version 10.1.0 Installation and Configuration Guide.			
Additional Browser Configuration	SI-6		
Install Adobe Flash Player 10			
Install Adobe Reader 7			
MS Office 2003 <ul style="list-style-type: none"> <li>• MS Office PowerPoint 2003</li> <li>• MS Office Excel 2003</li> <li>• MS Office Word 2003</li> </ul>			
Install DB2 Express Version 9.7	SI-7	5 mins	
Ensure You Have Internet Information Services (IIS) Installed	SI-8	2 mins	
Install and Configure Apache Directory Server	SI-9		

<b>Setup</b>	<b>Page</b>	<b>Est. Time</b>	<b>Complete</b>
Create Users in the NTLM Authentication Provider	SI-15	15 mins	
Configure the Web Server	SI-16		
Install and Configure Lotus Domino Server 8.5.1 and Lotus iNotes	SI-17	10 mins	
Install: Eclipse JEE Galileo (JAVA IDE) (eclipse-jee-galileo-win32.zip) SWT 3.4 win 32 (standard widget toolkit) Sharp Develop 3.0.0. (C# IDE)			
Perform a default installation of IBM Cognos BI: Note: Do not set up the content store database and do not configure IBM Cognos BI. <ul style="list-style-type: none"> <li>• IBM Cognos BI Modeler (bimodel)</li> <li>• IBM Cognos BI Samples (bisamples)</li> <li>• IBM Cognos BI Server (bisrvr)</li> <li>• IBM Cognos Statistics 10.1 (stats)</li> </ul>		1 hr	
Create the IBM Cognos BI Content Store and Samples database	SI-26	2 mins	
Set up Web Aliases	SI-32	2 mins	
Configure IBM Cognos BI	SI-33	10 mins.	
Deploy IBM Cognos BI Samples and Student Data	SI-36	10 mins.	

<b>Setup</b>	<b>Page</b>	<b>Est. Time</b>	<b>Complete</b>
Add Data Sources	SI-38	10 mins.	
Restrict Access to Administrative Tools.	SI-40	2 mins.	
Add Users to the to the Authors Role and Restrict Access to Other Roles	SI-41	2 mins.	
Create Groups in the Cognos Namespace and Add Users to Groups	SI-42	2 mins.	
Assign the Report Administrators Role to the Drill Through Assistant Capability	SI-43	2 mins	
Enable the Allow External Data Capability on Packages	SI-44		
Allow External Data Capabilities for Roles	SI-45		
Modify the AssignStaff stored procedure in the GS_DB Database	SI-46	2 mins.	
Run the B5159_Event_Studio_Modify_GOSALES.txt Script	SI-47	2 mins.	
Ensure Simple File Sharing is Off (VMWare images only)	SI-48	2 mins.	
<b>Total Time for setup</b>		<b>2 hrs. 30 mins.</b>	

## Additional Browser Configuration

### Task 1. Configure Internet Explorer 7.

1. Open **Internet Explorer**.
2. From the **Tools** menu, point to **Pop-up Blocker**, and then click **Turn Off Pop-up Blocker**.
3. From the **Tools** menu, click **Internet Options**.
4. Click the **Security** tab, and then under **Select a zone to view or change security settings**, click **Internet**.
5. Click **Custom level**, and then scroll to the **Scripting** settings.
6. Under **Allow Programmatic clipboard access**, click **Enable**.
7. Scroll to the **Downloads** settings.
8. Under **Automatic prompting for file downloads**, click **Enable**.
9. Click **OK**, click **Yes**, and then close the **Internet Options** window.
10. Close **Internet Explorer**.

## Install DB2 Express Version 9.7

### Task 1. Install DB2 Express.

Note: You must be logged on to the local machine with Administrative privileges to perform the installation.

The course has been developed and tested using DB2 Express 9.7. The installation files are not provided in the image or as student data.

1. In **Windows Explorer**, navigate to the location of the **DB2 Express** installation files, and then double-click **setup.exe**.
2. Click **Install a Product**, and then click **Install New**.
3. Click **Next**.
4. Click **I accept the terms in the license agreement**, and then click **Next**.
5. Ensure **Typical** (default) is selected, and then click **Next**.
6. Click **Install IBM DB2 Express Edition on this computer**, and then click **Next**.
7. Choose the directory to install DB2, and then click **Next**.
8. In the **Password** and **Confirm password** boxes, type **Education1!**, and then click **Next**.
9. Leave **DB2** in the **DB2 instances** box, and then click **Next**.
10. Click **Install**.
11. Click **Next**, click **Finish**, and then click **Exit**.

## Ensure Internet Information Services is Installed

### Task 1. Ensure you have Internet Information Services installed.

1. Open **Control Panel**, and then double-click **Add or Remove Programs**.
2. Click **Add/Remove Windows Components**.
3. Ensure the **Internet Information Services (IIS)** check box is selected.
4. Highlight **Internet Information Services (IIS)**, and then click **Details**.
5. Ensure all of the check boxes for the subcomponents are selected.
6. If any of the check boxes are grayed out, highlight the subcomponent, click **Details**, and then select all of the check boxes.
7. When you are finished, close all of the dialog boxes, and then close **Control Panel**.



# Install and Configure Apache Directory Server

## Task 1. Install Apacheds-1.5.7-setup.exe.

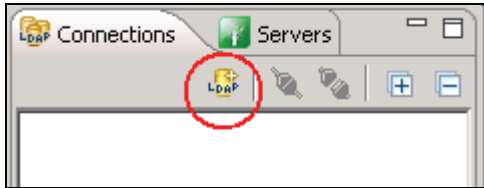
1. Double-click the **Apacheds-1.5.7-setup.exe** file to begin the installation process.
2. Click **Next** in the **Setup** wizard window.
3. Click **I Agree** in the license window.
4. Click **Next**.
5. Accept the default install path for **Server Home Directory**, and then click **Next**.
6. Accept the default install path for **Server Instances Home Directory**, and then click **Next**.
7. Click **Install**.
8. Click **Next**.
9. Click **Finish**.
10. Click **Yes** to start the directory server.
11. Click **Finish**.

## Task 2. Install Apache Directory Studio.

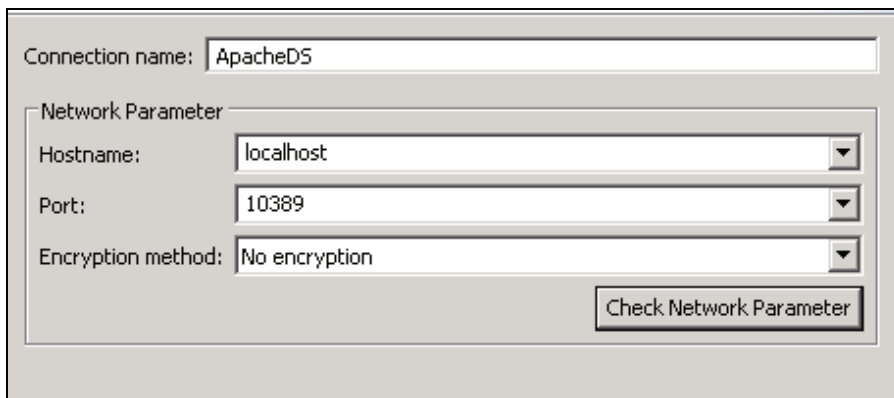
1. Double-click the **ApacheDirectoryStudio-win32-1.5.3.v20100330.exe** file.
2. Click **Next**.
3. Click **I Agree** on the license page.
4. Accept the default install path, and then click **Install**.
5. Click **Next**.
6. Click **Finish**.

### Task 3. Configure Apache Directory Studio.

1. Open **Apache Directory Studio** by navigating to **Start\All Programs\Apache Directory Studio\Apache Directory Studio**.
2. Close the **Welcome** window.
3. Select the **Connections** tab, and then click **New Connections**.



4. Ensure that the following settings are specified, and then click **Check Network Parameter**. You will update the Port setting later.



Connection name: ApacheDS

Network Parameter

Hostname: localhost

Port: 10389

Encryption method: No encryption

Check Network Parameter

5. Click **OK** to close the **Check Network Parameter** window.
6. Click **Next**.

7. Ensure that the following settings are specified, and then click **Check Authentication**. Type **secret** as the password, and ensure that you deselect **Save Password**.

Authentication Method: Simple Authentication

Authentication Parameter:

Bind DN or user: uid=admin,ou=system

Bind password: [masked]

☐ Save password

Check Authentication

► SASL Settings

► Kerberos Settings

8. Click **OK**
9. Click **Finish**.
10. If prompted, re-type the password (**secret**) to confirm the password.
11. Expand **ou=system** and click **uid=admin**.
12. In **Attribute Description**, double click **userPassword**.
13. Click the **New Password** tab and type **admin1234** in the **Enter New Password** box.

You can click the **Show new password details** check box to ensure that you typed the correct password. Once you have ensured the correct password, deselect the check box again.

Current Password | **New Password**

Enter New Password: admin1234

Select Hash Method: SHA

Password Preview: {SHA}e5Aub/Hbn1YEQ/IEiXT9fThpdbA=

Password (Hex): 7b902e6ff1db9f560443f2048974fd7d386975b0

Salt (Hex): -

☒ Show new password details

New Salt

14. Click **OK**.
15. Right-click the **ApacheDS** connection, and then click **Properties**.
16. Click the **Authentication** tab, click **Save Password**, and then type **admin1234** in the **Bind password** area.
17. Check **Authentication**.
18. Click **OK**.
19. Click **OK** to close the **Connection** window.
20. In **Windows Explorer**, navigate to **C:\Program Files\Apache Directory Server\instances\default\conf**, and then open the **server.xml** file.
21. Under **partitions**, make the following changes:

```
<partitions>
<!-- NOTE: when specifying new partitions you need not include those -->
<!-- attributes below with OID's which are the system indices, if left -->
<!-- out they will be automatically configured for you with defaults. -->
<jdbmPartition id="cognos" cacheSize="100" suffix="dc=cognos,dc=com" optimizerEnabled="true"
syncOnWrite="true">
</indexedAttributes>
```

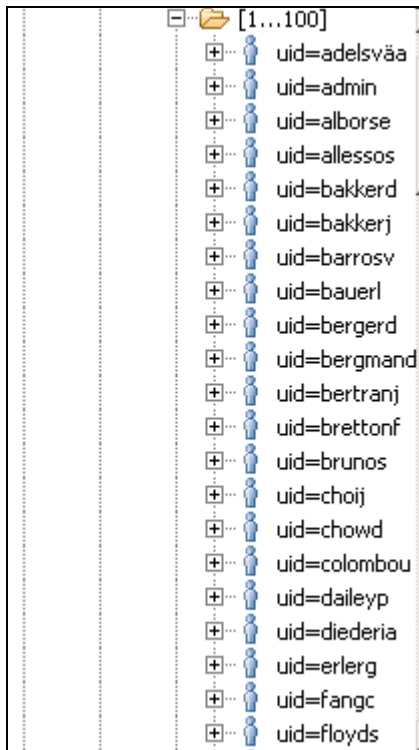
22. Under **LDAP Services configuration**, make the following change

```
<transports>
<tcpTransport address="0.0.0.0" port="389" nbThreads="8" backlog="50" enableSSL="false"/>
<tcpTransport address="localhost" port="10636" enableSSL="true"/>
</transports>
```

23. Save and close the file.
24. In the **Services** window, stop and start the Apache Directory Server.
25. In **Apache Directory Studio**, right-click the **ApacheDS** connection, and then click **Properties**.
26. Change the **Port** from **10389** to **389**.
27. Click **Check Network Parameter**.
28. Click **OK**, and then click **OK** to close the Properties window.
29. In the **LDAP Browser**, right-click **DIT**, select **Import**, and then click **LDIF Import**.

30. When the **LDIF Import** window opens, browse to **C:\Edcognos\B5159\Instructor Files**, and then click **LDAP-int.ldif**.
31. Click **Open**, and ensure **ApacheDS** is selected as **Import into**.
32. Click **Finish**.
33. In the LDAP Browser right-click **DIT**, select **Import**, and then click **LDIF Import**.
34. When the **LDIF Import** window opens, browse to **C:\Edcognos\B5159\Instructor Files**, and then click **LDAP Accounts.ldif**.
35. Click **Open**, and then click **Finish**.

36. Expand **dc=Cognos,dc=com**, and then expand **ou=People** to ensure that all of the accounts were added:



Note: the users required in this course are:

Johan Bakker	Ana Orozco
Frank Bretton	Sally White
Donald Chow	Assistant Manager
Branka Hirsch	Corey Wright
Fritz Hirsch	Fei Meng
Bart Scott	Pierre Lavoie
John Sinden	He Teo
David Smythe	Mattias wallgren
Alessandra Torta	Bjorn Winkler
Alice Walters	Sylvie Leyder

37. Close **Apache Directory Studio**.

## Create Users in the NTLM Authentication Provider

Note: as an alternative to manually creating users, you can automate this by running the Create NTLM Users.vbs script. This script requires the Users.txt file. Both are provided as instructor data located at C:\Edcognos\B5159\Instructor Files. Running this script creates all NTLM users required for all Cognos BI courses. If you only require selected users appropriate to your course, then proceed with creating the users manually.

Note: the Create NTLM Users.vbs script is used to create the GES Classroom VMWare common product image

1. From the **Start** menu, click **Control Panel**, and then double-click **Administrative Tools**.
2. Double-click **Computer Management**.
3. Expand **Local Users and Groups**.
4. Right-click **Users**, and then click **New User**.
5. In the **User name** box, type **admin** and then in the **Full Name** box, type **Admin Person**.
6. In the password and confirm password boxes, type **Education1!**.
7. Clear the **User must change password at next logon** check box, select the **Password never expires** check box, and then click **Create**.
8. Repeat steps 4 to 7 to create the following users:
  - User name: **C10User**, Full name: **C10 User**, Password: **Education1!**
  - User name: **GOSALES**, Full name: **GO SALES**, Password: **Education1!**
  - User name: **GOSALESDW**, Full name: **GO SALES DW**, Password: **Education1!**
9. Click **Close** to close the dialog box.
10. In the left pane, click **Users**, to ensure that the users have been added.
11. Close **Computer Management** and **Administrative Tools**.

## Configure the Web Server

### Task 1. Change default port number for Web Server.

1. From **Control Panel**, open **Administrative Tools**, and then open **Internet Information Services**.
2. In the left pane, expand **<computer name>**, and then expand **Web Sites**.
3. Right-click **Default Web Site**, and then click **Properties**.
4. In the **TCP Port** box, type **88**, and then click **OK**.
5. Leave the **Internet Information Services** window open.



# Install and Configure Lotus Domino Server 8.5.1 and Lotus iNotes

## Task 1. Stop SMTP.

1. Open **Control Panel**, and then double-click **Administrative Tools**.
2. Double-click **Services**, and then disable the **Simple Mail Transport Protocol (SMTP)** service.

## Task 2. Install Lotus Domino Server.

1. Double-click **setup.exe** program.
2. In the **Lotus Domino Installer**, click **Next**.
3. Click **I accept the terms in the license agreement**, and then click **Next**.
4. In the **Program Files Directory Name** box, specify the install drive (D: is used for VMWare image creation), accept the remaining default directory, and then click **Next**.
5. In the **Data Files Directory Name** box, accept the default directory, and then click **Next**.
6. In the **Choose the setup type that best suits your needs** screen, accept the default of **Domino Enterprise Server**, and then click **Next**.
7. Click **Next**, and then click **Finish**.

### Task 3. Configure Lotus Domino Server.

1. On the Desktop, double-click Lotus Domino Server.
2. On the **Welcome to Domino Server Setup!** screen, click **Next**.
3. On the **First or additional server** screen, accept the default of **Set up the first server or a standalone server**, and then click **Next**.
4. On the **Provide a server name and title** screen, in the **Server name** box, leave the default **<computer name>**, and then click **Next**.
5. On the **Choose your organization** screen, in the **Organization name** box, type **<your organization name>** (IBM is used for VMWare image creation), and then in the **Organization Certifier password** and **Confirm password** boxes, type **Education1!**.
6. Click **Next**.
7. In the **Domino domain name** box, type **grtd123**, and then click **Next**.
8. On the **Specify an Administrator name and password** screen, set the following  
 First Name: **Admin**  
 Last name (or generic account name): **Person**  
 Administrator password: **Education1!**  
 Confirm password: **Education1!**
9. Select the **Also save as local copy of the id file** check box, and then click **Next**.
10. On the **What Internet services should this server provide** screen, under **Set Internet services for**, select the **Web Browsers (HTTP services)** and **Internet Mail Clients (SMTP POP3, and IMAP services)** check boxes, and then deselect the **Directory service (LDAP services)** check box.
11. Click **Next**.

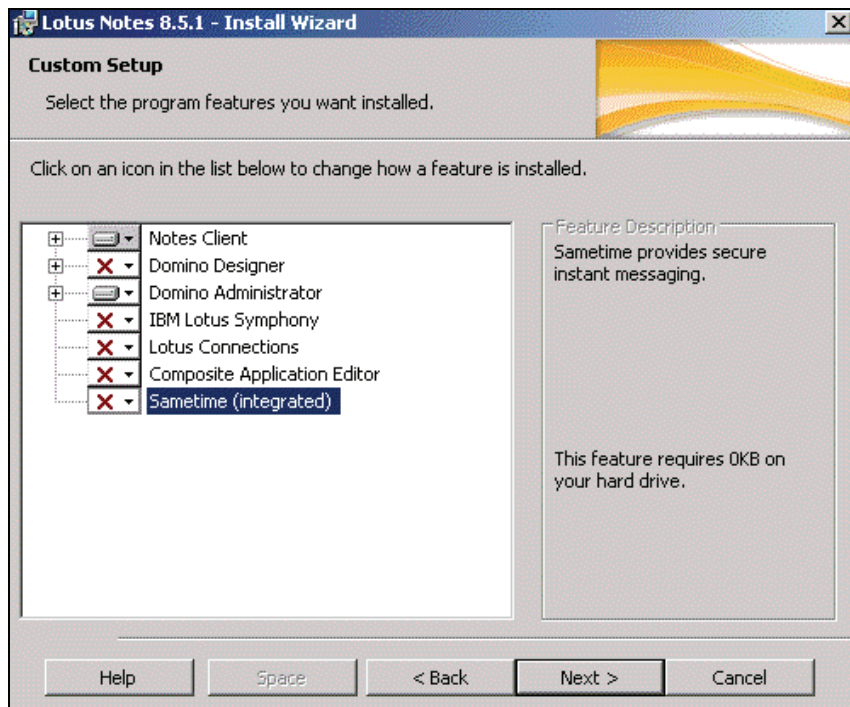
12. On the **Domino network settings** screen, click **Customize**.
13. In the Advanced Network Settings dialog box, in the **Type the fully qualified internet host name for this Domino server** box, type **localhost.localdomain**.
14. Click **OK**, and then click **Next**.
15. On the **Secure your Domino Server** screen, deselect the **Prohibit Anonymous access to all databases and templates** check box, and then click **Next**.
16. On the **Please review and confirm your chosen server setup options** screen, click **Setup**.
17. On the **Setup summary** screen, click **Finish**.

#### **Task 4. Install the Lotus Domino Administration client.**

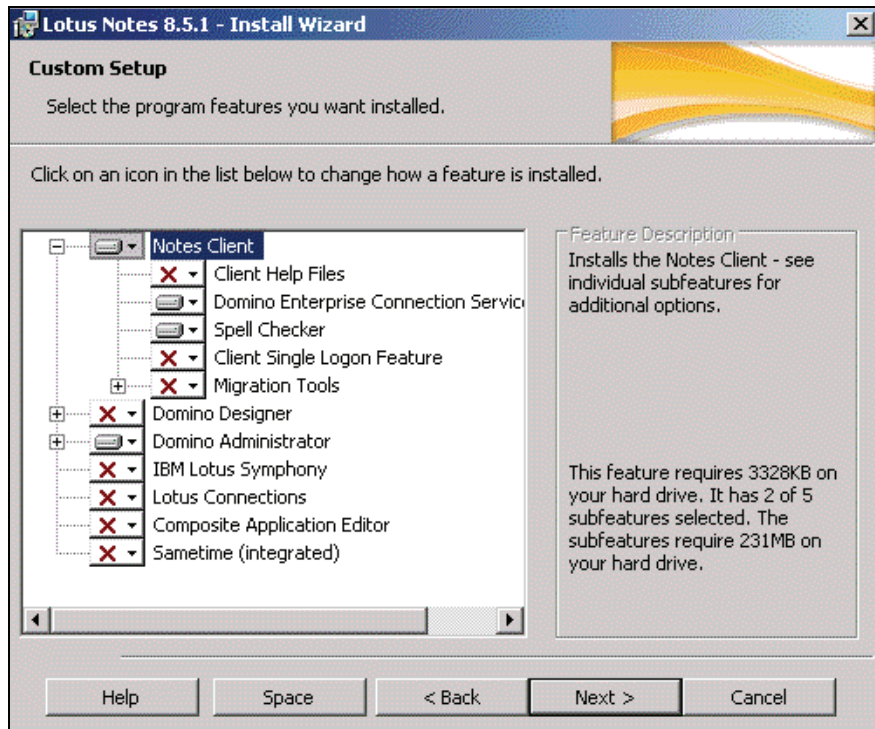
1. Double-click **setup.exe**.
2. In the **Lotus Notes 8.5.1 - Install Wizard**, click **Next**.
3. Click **I accept the terms in the license agreement**, and then click **Next**.
4. On the **Customer Information** screen, leave the defaults, and then click **Next**.
5. On the **Installation Path Selection** screen, under **Install program files to**, click **Change**.
6. On the **Change Program Destination Folder** screen, in the **Folder name** box, specify the install drive (D: is used for VMWare image creation), accept the remaining default directory, and then click **OK**.
7. Under **Install data files to**, click **Change**.
8. In the **Folder name** box, specify the install drive (D: is used for VMWare image creation), accept the remaining default directory, and then click **OK**.
9. Click **Next**.

10. In the **Custom Set Up** screen, specify the following install components:

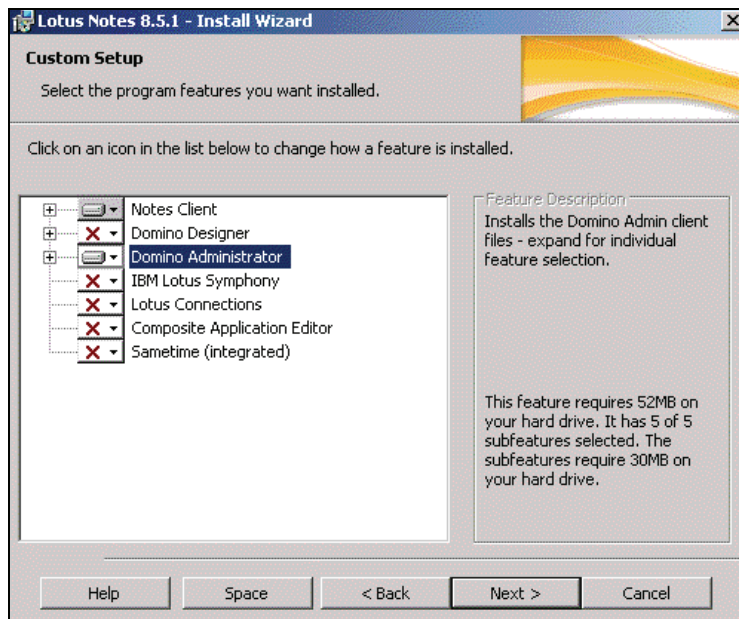
Do not install **Sametime (Integrated)**



Under **Notes Client**, do not install **Client Help Files**



For **Domino Administrator**, ensure that **This feature, and all subfeatures, will be installed on the local hard drive**, is selected.



11. Click **Next**.
12. On the **Ready to Install the Program** screen, deselect all check boxes, and then click **Install**.
13. Click **Finish**.

## **Task 5. Install the Lotus Domino Administration client fix pack.**

1. Double-click **setup.exe**.
2. In the **Lotus Notes 8.5.1 FP2 Install Wizard**, click **Next**.
3. Click **I accept the terms of the license agreement**, and then click **Next**.
4. Click **Next** to install, and then click **Install**.
5. Click **Finish**.

## Task 6. Start Domino Server and configure Lotus Domino Administration client.

1. On the Desktop, double-click Lotus Domino Server.
2. Accept the default of **Start Domino as a Windows Service**, select the **Don't ask me again** check box, and then click **OK**.

The Domino Server starts as seen in the Command Window. The server completes start up when the HTTP Server: Started message appears.

3. Minimize the Command Window.
4. On the **Desktop**, double-click **Domino Admin 8.5**.
5. On the **Welcome** screen, click **Next**.
6. On the **User Information** screen, in the **Your Name** box, type **Admin Person**, in the **Domino server** box, type **<computer name>/IBM**, and then ensure that the **I want to connect to a Domino Server** check box is selected.
7. Click **Next**.
8. In the **Password** box, type **Education1!** And then click **Log in**.
9. On the **Instant Messaging Setup** screen, deselect the **Setup instant messaging** check box, and then click **Next**.
10. On the **Additional Services** screen, ensure that nothing is selected, click **Finish**, and then click **OK**.
11. Select the **In the future, do not perform this check** check box, and then click **No**.
12. On the **Welcome** page, select the **Don't show this again** check box, and then click **Close this page**.



## Task 7. Create Users

1. In the left pane, on the **People & Groups** tab, expand **Domino Directories > grtd123's Directory**, and then click **People**.
2. In the middle pane, ensure that the **Admin Person** user is selected and then click **Edit Person**.
3. Click in the box beside **Internet address**, and then type **admin@grtd123.com**
4. Click **Save and Close**.
5. In the right pane, expand **People**, and then click **Register**.
6. Click **Certifier ID**, and then navigate to **<install drive>:/Program Files/IBM/Lotus/Domino/data**.
7. Click **cert.id**, click **Open**, and then click **OK**.
8. In the **Certifier password** box, type **Education1!**, and then click **OK**.
9. In the right pane, click **Register**.
10. In the **Register Person - New Entry** dialog box, specify the following properties:  
 First Name: **Donald**  
 Last Name: **Chow**  
 Password: **Education1!**
11. Click **Password Options**, drag the **Password Quality Scale** to **Weak**, and then deselect the **set internet password** check box, click **OK**.
12. In the **Mail system** list, click **Lotus iNotes**, and then click **Yes** to changing other registration settings.
13. Select the **Advanced** check box, and then in the left pane, click **Address**.
14. On the **Mail Internet Address Information** pane, specify the following properties:  
 Internet address: **DChow@grtd123.com**  
 Internet Domain: **grtd123.com**  
 Address name format: **FI LastName**

15. Click the green check mark to add the user to the **Registration Queue (local)** box, and then click **Register**.
16. Click **OK**, and then in the left pane, click **Basics**.
17. Repeat steps **11** to **17** to register additional users:

First Name	Last Name	Internet Address
Frank	Bretton	FBretton@grtd123.com
Ana	Orozco	AOrozco@grtd123Branka.com
Bart	Scott	BScott@grtd123.com
Sally	White	SWhite@grtd123.com
Assistant	Manager	AManager@grtd123.com
Corey	Wright	CWright@grtd123.com
Alice	Walter	AWalter@grtd123.com
Fei	Meng	Fmeng@grtd123.com
Pierre	Lavoie	PLavoie@grtd123.com
John	Sinden	JSinden@grtd123.com
Alessandra	Torta	ATorta@grtd123.com
He	Teo	HTeo@grtd123.com
Mattias	Wallgren	MWallgren@grtd123.com
Dave	Smythe	DSmythe@grtd123.com
Fritz	Hirsch	FHirsch@grtd123.com
Bjorn	Winkler	BWinkler@grtd123.com
Johan	Bakker	JBakker@grtd123.com
Sylvie	Leyder	SLeyder@grtd123.com

At step 14, you do not have to select the Advanced check box because that option stays selected when you are registering additional users.

18. Click **Done** to close the **Register Person - New Entry** box.
19. In the left pane, click **grtd123's Directory**, and then click **People**, to view the new users.



## **Task 8. Configure Lotus Domino Server to recognize the grtd123.com domain.**

1. Click the **Configuration** tab, and then in the left pane, expand **Messaging**.
2. Click **Domains**, and then click **Add Domain**.
3. In the **Domain Type** list, click **Global Domain**, and then click **OK**.
4. In the **Global domain name** box, type **Great Outdoors**.
5. In the **Global domain role** list, select the **R5/R6/R7/R8 Internet Domains** check box, and then click **OK**.
6. Beside **Use as default Global Domain**, select the **Yes** check box.
7. Click the **Restrictions** tab, and then in the **Domino domains and aliases** box, type **grtd123.com**.
8. Click the **Conversions** tab, and then in the **Local primary Internet domain** box, type **grtd123.com**, and then click **Save and Close**.
9. Close **IBM Domino Administrator**.

## **Task 9. Open Lotus iNotes.**

1. Open **Internet Explorer**, in the **Address** box, type **http://localhost/mail/aperson.nsf** and then press **Enter**.
2. In the **User Name** box, type **Admin Person**, in the **Password** box, type **Education1!**, and then click **OK**.
3. If prompted to set up **Phishing Filter**, click **turn off automatic Phishing Filter**, and then click **OK**.
4. Click **OK** to accept the warning message that IBM Lotus Notes detected an unknown time zone.
5. In the left pane, click **Mail**.

## Create the IBM Cognos BI Content Store and Samples Database

### Task 1. Create the IBM Cognos BI Content Store database.

You must be logged on to the local machine with administrative privileges to perform this task.

This task does not generate the tables or populate the content store database. Table generation and population occur when the IBM Cognos Service is started for the first time.

1. In **Windows Explorer**, navigate to **C:\Edcognos\B5159\Instructor Files**, and then double-click **DB2 Script - Create & Config C10 Content Store.txt**, copy the contents to the clipboard, and then close **Notepad**.
2. From the **Start** menu, point to **All Programs>IBM DB2>DB2COPY1 (Default)>Command Line Tools**, and then click **Command Editor**.

3. At the prompt, paste the contents of the clipboard, and then from the **Selected** menu, click **Execute**.

The results appear as follows:

The results appear as follows:

```
GRANT CREATETAB,BINDADD,CONNECT,IMPLICIT_SCHEMA On DATABASE TO USER C10User;
GRANT CREATEIN,DROPIN,ALTERIN ON SCHEMA TO USER C10User WITH GRANT OPTION;
GRANT USE OF TABLESPACE c10_USR_TEMP TO USER C10User;
CONNECT RESET;
TERMINATE;
```

```
GRANT CREATETAB,BINDADD,CONNECT,IMPLICIT_SCHEMA On DATABASE TO USER C10User
DB20000I The SQL command completed successfully.
```

```
GRANT CREATEIN,DROPIN,ALTERIN ON SCHEMA TO USER C10User WITH GRANT OPTION
DB20000I The SQL command completed successfully.
```

```
GRANT USE OF TABLESPACE c10_USR_TEMP TO USER C10User
DB20000I The SQL command completed successfully.
```

```
CONNECT RESET
DB20000I The SQL command completed successfully.
```

```
TERMINATE
DB20000I The SQL command completed successfully.
```

4. Close Command Editor.
5. In Windows Explorer, navigate to <DB2 install drive>:\Program Files\IBM\SQLLIB\java, and then copy the db2jcc.jar and db2jcc\_license\_cu.jar files.
6. Navigate to <c10 install drive>:\Program Files\IBM\cognos\c10\webapps\p2pd\WEB-INF\lib, and then paste the db2jcc.jar and db2jcc\_license\_cu.jar files.

## Task 2. Create and populate the DB2 samples database.

1. In **Windows Explorer**, navigate to <c10 install drive>:\Program Files\IBM\cognos\c10\webcontent\samples\datasources\db2, and then double-click **GS\_DB.tar.gz**.
2. Click **Yes** when prompted for WinZip to decompress to a temporary folder and open.
3. Extract the contents of the file to c10 install drive>:\Program Files\IBM\cognos\c10\webcontent\samples\datasources\db2.

This produces a folder called GS\_DB at the location noted above.

Note: for VMWare image creation, because WinZip is not installed in the image, you will have to extract the contents of GS\_DB.tar.gz outside the image, and then move the GS\_DB folder to the location noted above.

4. Navigate to **GS\_DB >win**, and then double-click **setupGSDB.bat**.
5. In the command window, press **Enter** to accept the default database name of **GS\_DB**.
6. Press **Enter** to create the **GS\_DB** database.
7. At the prompt type **db2admin** as the DB2 administration user name, and then press **Enter**.
8. Press **Enter** to accept the default database creation settings.

The script begins to run.

9. At the **Enter current password for db2admin** prompt, type **Education1!**, and then press **Enter**.

The script begins to run again. When the script finishes, the results appear as follows:

```
Creating database GS_DB
Connecting to GS_DB
Enter current password for db2admin:
```

#### Database Connection Information

```
Database server          = DB2/NT 9.7.0
SQL authorization ID     = DB2ADMIN
Local database alias     = GS_DB
```

```
Creating bufferpool and tablespace.
Creating tables.
Loading data.
Creating primary keys
Creating indexes
Creating constraints.
Creating stored procedures
Creating views
Granting permissions
Updating statistics
Verifying row counts
Table row count validation successful
Adding table comments
```

10. Close the command window.

### **Task 3. Create and populate the CSTATD DB2 samples database.**

1. In **Windows Explorer**, navigate to **C:\Edcognos\B5159\Instructor Files**, and then double-click **DB2 Script - Create & Config C10 Statistics DB.txt**, copy the contents to the clipboard, and then close **Notepad**.
2. From the **Start** menu, point to **All Programs > IBM DB2 > DB2COPY1 (Default) > Command Line Tools**, and then click **Command Editor**.

3. At the prompt, paste the contents of the clipboard, and then from the **Selected** menu, click **Execute**.

A section of the results appear as follows:

```
CREATE SCHEMA C10User AUTHORIZATION C10User
DB20000I The SQL command completed successfully.
```

```
CONNECT RESET
DB20000I The SQL command completed successfully.
```

```
TERMINATE
DB20000I The TERMINATE command completed successfully.
```

4. In **Windows Explorer**, navigate to **<c10 install drive>:\Program Files\IBM\cognos\c10\webcontent\samples\datasources\db2**, and then double-click **CSTATD.tar.gz**.
5. Click **Yes** when prompted for WinZip to decompress to a temporary folder and open.
6. Extract the contents of the file to **<c10 install drive>:\Program Files\IBM\cognos\c10\webcontent\samples\datasources\db2**.

This produces a folder called CSTATD at the location noted above.

Note: for VMWare image creation, because WinZip is not installed in the image, you will have to extract the contents of CSTATD.tar.gz outside the image, and then move the CSTATD folder to the location noted above.

7. To use the DB2 move command to restore the CSTATD database, open a command window, and at the prompt, navigate to the extracted **CSTATD** directory.

You will have to use DOS commands like <drive letter>: to change to a different drive, and cd <path> to change to a different directory.

8. From the CSTATD prompt, and type the following move command, "**<DB2 install path>\db2move**" CSTAT import, and then press **Enter**.

For example:

```
"D:\Program Files\IBM\SQLLIB\BIN\db2move" CSTATD import -u
db2admin -p "Education1!"
```

The script begins to run. When the script finishes, a section of the results appear as follows:

```
* IMPORT:  table "CSTATD  "."SH_SHIFT_LOOKUP"
  -Rows read:           33
  -Inserted:           33
  -Rejected:            0
  -Committed:          33
```

```
Disconnecting from database ... successful!
```

9. Close all open windows.

## Set up Web Aliases

### Task 1. Set up aliases for IBM Cognos 10.

1. In **Internet Information Services**, in the left pane, expand **Default Web Site**, right-click **Default Web Site**, point to **New**, and then click **Virtual Directory**.
2. Click **Next**.
3. Under **Alias**, type **ibmcognos**, and then click **Next**.
4. Browse to <c10 install drive>:\Program Files\IBM\cognos\c10\webcontent, click **OK**, and then click **Next**.
5. Deselect the **Run scripts** check box, so only **Read** is selected, and then click **Next**.
6. Click **Finish**.
7. Right-click the **ibmcognos** virtual directory folder, point to **New**, and then click **Virtual Directory**.
8. Click **Next**.
9. Under **Alias**, type **cgi-bin**, and then click **Next**.
10. Browse to <c10 install drive>:\Program Files\IBM\cognos\c10\cgi-bin, click **OK**, and then click **Next**.
11. Select the **Execute** check box, deselect the **Read** and **Run scripts** check boxes, and then click **Next**.
12. Click **Finish**.

### Task 2. Give browse access to images.

1. Expand the **samples** folder.
2. Right-click **images**, and then click **Properties**.
3. In the **images Properties** dialog box under the **Directory** tab, select the **Directory browsing** check box.
4. Click **OK**.
5. Start the **Default Web Site**.
6. Close **Internet Information Services**, and then close **Administrative Tools**.



## Configure IBM Cognos BI

### Task 1. Configure the LDAP provider.

1. From the **Start** menu, point to **All Programs>IBM Cognos 10**, and then click **IBM Cognos Configuration**.
2. In the **Explorer** pane, right-click **Authentication**, point to **New resource**, and then click **Namespace**.
3. In the **New Namespace** dialog box, under **Name**, type **LDAP**, and then in the **Type** list, click **LDAP**.
4. Click **OK**.
5. In the **Properties** pane, specify the following properties:  
 Note: press **Enter** after setting each property.  
 Namespace ID: **LDAP\_ID**  
 Host and port: **localhost:389**  
 Base Distinguished Name: **dc=cognos, dc=com**  
 User lookup: **uid=\${userID},ou=People**
6. In the **Explorer** pane, under **Authentication**, click **Cognos**.
7. Change the **Allow anonymous access** setting to **False**.
8. Click **Authentication**, and then change the **Inactivity timeout in seconds** property to **86400**.



This step will extend the session time out period to 24 hours so that students do not have to constantly log on during the day.

## Task 2. Add Global Setting to Save Files to the Server.

1. In the left pane, below **Data Access**, click **Content Manager**.
2. In the right pane, set **Save report outputs to a file system?** to **True**.
3. From the **Actions** menu, click **Edit Global Configuration**, and then click the **General** tab.
4. Beside **Archive Location File System Root**, type **file:///C:/Edcognos**  
Note: The directory C:\Edcognos must already exist.
5. Click **Test**, click **Close**, and then click **OK**.

## Task 3. Configure the IBM Cognos BI Components.

1. In the **Explorer** pane, click **Notification**, and then in the **Properties** pane, set the following properties:  
SMTP mail server: **localhost:25**  
User ID and password:  
    User ID: **Admin Person**  
    Password: **Education1!**  
Default sender: **admin@grtd123.com**
2. In the **Explorer** pane, right-click **Notification**, and then click **Test**.
3. When the test completes successfully, click **Close**.
4. Return to **IBM Cognos Configuration**, in the **Explorer** pane, expand the **Data Access** node and the **Content Manager** component reference if necessary, and then click **Content Store**.
5. In the **Properties** pane, set the following properties:  
Database server and port number: **localhost:50000**  
Database name: **cm**  
User ID and password:  
    User ID: **C10User**  
    Password: **Education1!**

6. In the **Explorer** pane, right-click **Content Store**, and then click **Test**.
7. After successful completion of the test, click **Close**.
8. In the **Explorer** pane, click **Environment**, and then in the **Properties** pane, set the **Gateway URI** property to **http://localhost:88/ibmcognos/cgi-bin/cognos.cgi**
9. Click **Save configuration**. 
10. Click **Close**.
11. Click **Start**  to start the IBM Cognos service.
12. When all services are started, click **Close**.
13. Close **IBM Cognos Configuration**.

## Deploy IBM Cognos BI Samples and Student Data

### Task 1. Prepare for deployment.

1. In **Windows Explorer**, navigate to <c10 install drive>:\ **Program Files\IBM\cognos\c10\ webcontent\samples\content**.
2. Copy the following files:  
**IBM\_Cognos\_DrillThroughSamples.zip**  
**IBM\_Cognos\_PowerCube.zip**  
**IBM\_Cognos\_Statistics**
3. Navigate to <c10 install drive>:\ **Program Files\cognos\c10\deployment**, and then paste the zip files.
4. Navigate to **C:\Edcognos\B5159\Instructor Files**, copy **B5159\_Content.zip** and **IBM\_Cognos\_Samples.zip**, and then paste to <c10 install drive>:\ **Program Files\cognos\c10\deployment**.

### Task 2. Import the samples.


To ensure that the appropriate content is deployed, it is important that the .zip files are deployed in the order described in the following steps.

1. Open **Internet Explorer**, in the **Address** box, type **http://localhost:88/ibmcognos** and press **Enter**.
2. If required, in the **User ID** box, type **admin**, in the **Password** box, type **Education1!**, and then click **OK**.
3. On the **IBM Cognos software** page, click **Administer IBM Cognos content**.
4. Click the **Configuration** tab, and then click **Content Administration**.
5. On the toolbar, click **New Import**.

6. On the **Select a deployment archive** page, select the **IBM\_Cognos\_Samples** archive, and then click **Next**.
7. On the **Specify name and description** page, click **Next**.
8. On the **Select the public folders content** page, select the **Samples** check box, and then click **Next**.
9. On the **Specify the general options** page, click **Next**.
10. On the **Review the summary** page, click **Next**.
11. On the **Select an action** page, ensure **Save and run once** is selected, and then click **Finish**.
12. On the **Run with options** page, ensure **Now** is selected, click **Run**, and then click **OK**.
13. Repeat steps **5** to **12** for the **IBM\_Cognos\_Drill\_Through\_Samples.zip** deployment.
14. Repeat steps **5** to **12** for the **IBM\_Cognos\_Statistics** deployment.
15. Repeat steps **5** to **12** for the **IBM\_Cognos PowerCube.zip** deployment.
16. Repeat steps **5** to **12** for the **B5159\_Content** archive. At step 8, select the **B5158, B5159, B5158\_Solutions, B5159\_Solutions** folders.
  - B5158 and B5159 are the course folders that will be imported into Public Folders, containing starting point reports for many demos and workshops.
  - B5158\_Solutions and B5159\_Solutions contain the solution reports for all demos and workshops.

## Add Data Sources

### Task 1. Create data sources.

1. In the left pane, click the **Data Source Connections** tab.
2. Click **New Data Source** .
4. Under **Name**, type **great\_outdoors\_sales** and then click **Next**.
5. In the **Type** list, click **IBM DB2**, and then click **Next**.
6. Under **DB2 database name**, type **GS\_DB**
7. Under **Signons**, select the **Password** check box.
8. In the **User ID** box, type **GOSALES**, and in the **Password** and **Confirm password** boxes, and then type **Education1!**
9. Click **Test the connection**, and then click **Test**.
10. Click **Close**, click **Close** again, then click **Finish**, and then click **OK**.
11. Repeat steps 2 to 10 to create the following data sources

Name: **great\_outdoors\_warehouse**

Type: **IBM DB2**

Database name: **GS\_DB**

Signon with Password:

User ID: **GOSALESDW**

Password: **Education1!**

Name: **statistics**

Type: **IBM DB2**

Database name: **CSTATD**

Signon with Password:

User ID: **DB2ADMIN**

Password: **Education1!**

12. Add a cube data source:

Name: **sales\_and\_marketing**

Type: **IBM Cognos PowerCube**

Windows location: **<c10 install drive>:\Program Files\cognos\c10\webcontent\samples\datasources\cubes\PowerCubes\EN\sales\_and\_marketing.mdc**

13. Test the connection.

14. Click **Finish**, and then click **OK**.

15. Repeat steps **12 - 14** to add another cube data source

Name: **great\_outdoors\_sales\_en**

Type: **IBM Cognos PowerCube**

Windows location: **<c10 install drive>:\Program Files\cognos\c10\webcontent\samples\datasources\cubes\PowerCubes\EN\ great\_outdoors\_sales\_en.mdc**

## Restrict Access to Administrative Tools

### Task 1. Restrict access to administrative tools.

1. Click the **Security** tab.
2. Under the **Name** column, click **Cognos**, click **Next Page**, and then beside the **System Administrators** role, click **Set properties**.
3. Click the **Members** tab.
4. Click **Add**, select the **Show users in the list** check box, and then click **LDAP**.
5. Select the **Admin Person (admin)** check box, click **Add** (green arrow), and then click **OK**.
6. Select the **Everyone** check box, click **Remove**, and then click **OK**.



## Add Specific Users to Groups and Restrict Access to Other Groups

### Task 1. Add specific users to Groups and restrict access to other Groups.

1. Click **First Page**, and then beside **Authors**, click **Set properties - Authors**.
2. Click the **Members** tab, and then click **Add**.
3. Select the **Show users in the list** check box, then click **LDAP**, and then click **People**.
4. Click **Next Page** twice, select the **Frank Bretton (brettonf)** check box, and then click **Add** (green arrow).
5. Click **OK**.
6. Select the **Everyone** check box, click **Remove**, and then click **OK**.
7. Add **Jeff Waters** to the **Directory Administrators** role.
8. Add **Frank Bretton** to the **Statistics Authors** role.
9. Add **Branka Hirsh** to the **Report Administrators** role.
10. Ensure that the **Everyone** group is removed from the following roles:
  - Adaptive Analytics Users
  - Analysis Users
  - Controller Users
  - Data Manager Authors
  - Express Authors
  - Metrics Authors
  - Metrics Users
  - Planning Contributor Users
  - PowerPlay Users
  - Query Users

## Create Groups in the Cognos Namespace and Add Users to Groups


### Task 1. Create Groups in the Cognos namespace and add users to Groups.

1. On the toolbar, click **New Group** .
2. In the **Name** box, type **Australia** and then click **Next**.
3. Click **Add**, click the **Show users in the list** check box, then click **LDAP**, and then click **People**.
4. Select the **John Sinden** check box, click **Add** (green arrow), and then click **OK**.
5. Click **Finish**.
6. Repeat steps 1 to 5 to create the following groups:

<u>Name</u>	<u>LDAP User</u>
Italy	Alessandra Torta
US	Bart Scott

Note: Users names are in alphabetical order by last name.

## Assign the Drill Through Assistant Capability to the Report Administrators Role

1. In the left pane, click **Capabilities**, and then beside the **Drill Through Assistant** capability, in the **Actions** list, click **Set properties** .
2. On the **Set properties - Drill Through Assistant** page, click the **Permissions** tab.
3. Click **Add**, and then add the **Report Administrators** role from the **Cognos** namespace to the **Selected entries** pane.
4. Click **OK**.
5. Grant **Execute** and **Traverse** permissions, and then click **OK**.
6. Close **IBM Cognos Administration**.

## Enable the Allow External Data Capability on Packages

Packages include permissions for allowing external data to be used or disallowed. By default, in the product sample packages, it is disallowed. By following these steps, you will permit the use of external data for two packages.

1. From the **Launch** menu, click **IBM Cognos Connection**, and then navigate to **Public Folders > Samples > Models**.
2. In the **Actions** column, beside **GO Data Warehouse (analysis)**, click **Set properties**.
3. Click the **Capabilities** tab, and then select the **Override the capabilities acquired from the parent entry with** check box.
4. Select the **Everyone** check box, and then under the **Grant** column, in the **Report Studio** section, select the **Allow External Data** check box.
5. Click **OK**.
6. Repeat steps 2 to 5 for the **GO Sales (query)** package.

## Allow External Data Capabilities for Roles

By default, in the product, permission to allow access to external data is turned off. By following these steps, you will permit the use of external data for Authors and Express Authors in Report Studio. Two User Interface Profiles are in place when you install IBM Cognos BI: Professional (Report Studio users, usually Authors), and Express (Business Insight Advanced users, usually Express Authors).

1. In **IBM Cognos Administration**, on the **Security** tab, click **Capabilities**, and then click **Last page**.
2. Click **Report Studio**, beside **Allow External Data**, click **Set properties**, and then click the **Permissions** tab.
3. Click **Add**, and then click **Cognos**.
4. Select the **Authors** and the **Express Authors** checkboxes, click **Add** (green arrow), and then click **OK**.
5. Select the **Everyone** check box, click **Remove**, and then click **OK**.
6. Select the **Override the access permissions acquired from the parent entry** check box.
7. Select the **Authors** and the **Express Authors** check boxes, and ensure grant them **Execute** and **Traverse** permissions.
8. Click **OK** to close the **Set properties** page.
9. Click **Log Off**, and close any open windows.

## Modify the AssignStaff Stored Procedure in the GS\_DB Database

1. Navigate to C:\Edcognos\B5159\Instructor Files; double click on the AssignStaff\_modified.bat file.

This batch file will call out and execute the AssignStaff\_modified.sql. The .sql file will drop the existing AssignStaff stored procedure. Remember, this stored procedure is created when you create and populate the samples GS\_DB database. It will then recreate the stored procedure including the modification. The modification includes adding hard coded date values in the DATE\_ADVISED column for some rows as specified by a where clause.

Note: the DATE\_ADVISED column is used in an Event Studio demo.

## Run the B5159\_Event\_Studio\_Modify\_GOSALES.txt Script.

### Task 1. Run the B5159\_Event\_Studio\_Modify\_GOSALES.txt Script

1. Navigate to **C:\Edcognos\B5159\Instructor Files\B5159\_Event\_Studio\_Modify\_GOSALES.txt** and open with **Notepad**.
2. From the **Edit** menu, click **Select All**.
3. From the **Edit** menu, click **Copy**, and then close **Notepad**.
4. From the **Start** menu, point to **All Programs, IBM DB2, DB2COPY1 (Default), Command Line Tools**, and then click **Command Editor**.
5. Click **Add**, select **GS\_DB**, and then click **OK**.
6. Right-click in the upper expression window, and click **Paste**.
7. From the **Toolbar** click **Execute**.  
The SQL command completed successfully.
8. Close the **Command Editor**.

## Ensure Simple File Sharing is Off

### Task 1. Ensure Simple File Sharing is off.

1. Open **Control Panel**.
2. Double-click **Folder Options**, click the **View** tab, and then deselect the **Use Simple File Sharing (Recommended)** check box.
3. Click **OK**, and then close **Control Panel**.

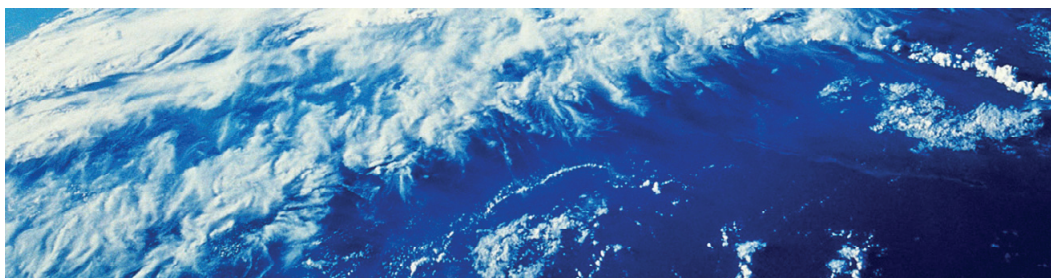




---

# Introduction

IBM Cognos BI



**Business Analytics**

© 2010 IBM Corporation



## Course Objectives

- At the end of this course, you should be able to:
  - highlight key capabilities of IBM Cognos BI
  - use basic and intermediate report building techniques
  - enhance, customize, and manage professional reports in Report Studio

# **Overview of IBM Cognos BI**

## **Introduction to the Reporting Application**

### **Create List Reports**

### **Focus Reports Using Filters**

### **Create Crosstab Reports**

IBM Cognos Report Studio: Author Professional  
Reports Fundamentals (v10.1)

**Cognos.**  
**software**

© 2010 IBM Corporation

## **IBM Cognos Report Studio: Author Professional Reports Fundamentals (v10.1)**

is a three-day, instructor–led course. It is designed for report authors to learn report building techniques using relational data models, and ways of enhancing, customizing, and managing professional reports. Attendees will participate in hands-on demos and workshops that illustrate key concepts while learning how to use the product.

Audience:

- Professional Report Authors

Recommended prerequisites:

- Knowledge of your business requirements
- Experience using the Windows environment
- Experience using a web browser
- IBM Cognos BI: Cognos Connection for Consumers (v10.1) WBT



**Present Data Graphically**  
**Focus Reports Using Prompts**  
**Extend Reports Using Calculations**  
**Present Data Using Maps**  
**Analyze Data Using Statistical reports**

IBM Cognos Report Studio: Author Professional  
Reports Fundamentals (v10.1)

**Cognos.**  
**software**

© 2010 IBM Corporation



**Use Additional Report Building techniques**  
**Customize Reports with Conditional Formatting**  
**Drill-Through from One Report to Another**  
**Drill-Through Definitions**  
**Enhance Report Layout**

IBM Cognos Report Studio: Author Professional  
Reports Fundamentals (v10.1)

**Cognos.**  
**software**

© 2010 IBM Corporation



## Additional Training

Bookmark [www.ibm.com/cognos/training](http://www.ibm.com/cognos/training) for details on:

- instructor-led training in a classroom or online
- self-paced training that fits your needs and schedule
- comprehensive curricula and training paths that help you identify the courses that are right for you
- IBM Cognos Certification program
- other resources that will enhance your success with IBM Cognos software

**Cognos.**  
**software**

© 2010 IBM Corporation



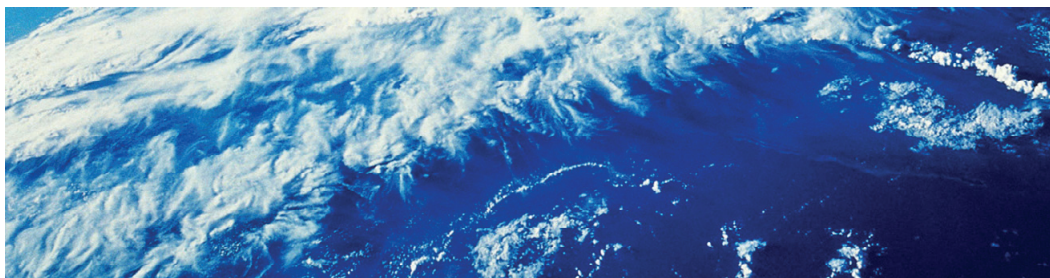




---

# Overview of IBM Cognos BI

IBM Cognos BI 10.1



**Business Analytics**

© 2010 IBM Corporation



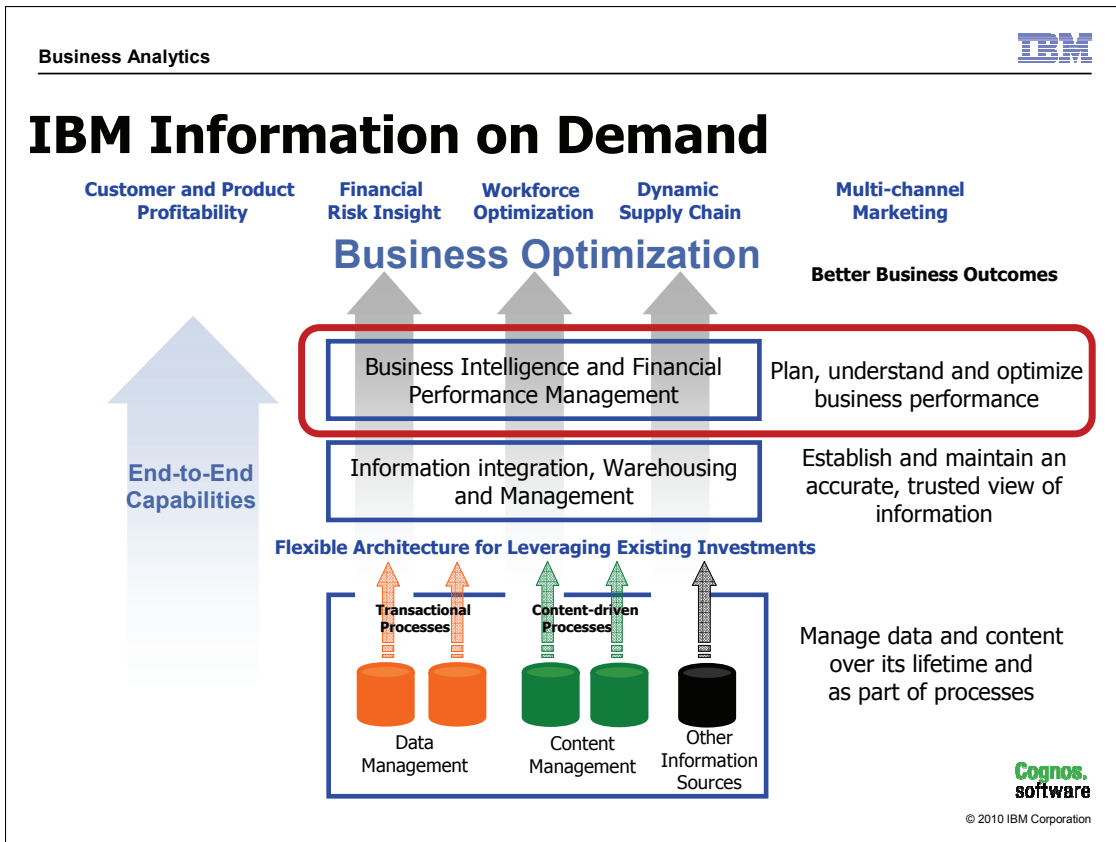
## Objectives

- At the end of this module, you should be able to:
  - describe IBM Cognos Business Intelligence (BI) and Financial Performance Management (FPM)
  - describe IBM Cognos BI components
  - describe IBM Cognos architecture at a high level
  - define IBM Cognos groups and roles
  - explain how to extend IBM Cognos BI

This module is a shared module used in several courses. The intent of this module is to help students understand where they fit into the IBM Cognos BI infrastructure. Tailor your delivery to your audience. You can stay high level or go into as much detail as you think is appropriate.

On the first page of the demo, refer to the IG note for suggested tasks to focus on for the audience in your specific course.

**INTERACTION - Survey:** Take a survey of the class to determine what IBM Cognos BI applications they currently use to determine their interests.



IBM's Information On Demand strategy helps you achieve better business outcomes for customer and product profitability, increased financial risk insight for better business decisions, an optimized workforce, more dynamic supply chain management, and support for multi-channel, event driven marketing initiatives. The strategy is focused on unlocking the business value of information for competitive advantage.

To achieve this, organizations require:

1. Ability to manage data and content over its lifecycle to reduce costs associated with managing information, provide controlled accessibility, and address retention and compliance requirements.
2. Ability to use data and content as part of the individual business processes and applications across the enterprise, optimizing the performance of applications and improving decision making; first two requirements addressed by data and content management capabilities.
3. Establishment of an accurate, trusted view of information across these different processes and applications to drive more consistent information across the enterprise and support analytic and other requirements to use information coming from different sources, whether it's delivering a single view of customers, products, revenue, etc.; they need a "flexible" architecture that can leverage all of their existing investments; accurate, trusted information is established through information integration, data warehousing and master data management.
4. Ability to leverage that trusted information to build their plans, understand how their business is performing, and focus on optimizing performance across the enterprise; accomplished through BI and performance management.

**INTERACTION - Star Sticker:** Ask students to put a star sticker beside the elements in the slide that they feel are most important to them.

## IBM Cognos BI and FPM

- Good decisions are the building blocks of great business performance.
- Understand and improve your business based on:
  - How are we doing?
  - Why are we doing well or not doing well?
  - What should we be doing?
- IBM provides financial performance management through software, services, best-practices, and partners.



© 2010 IBM Corporation

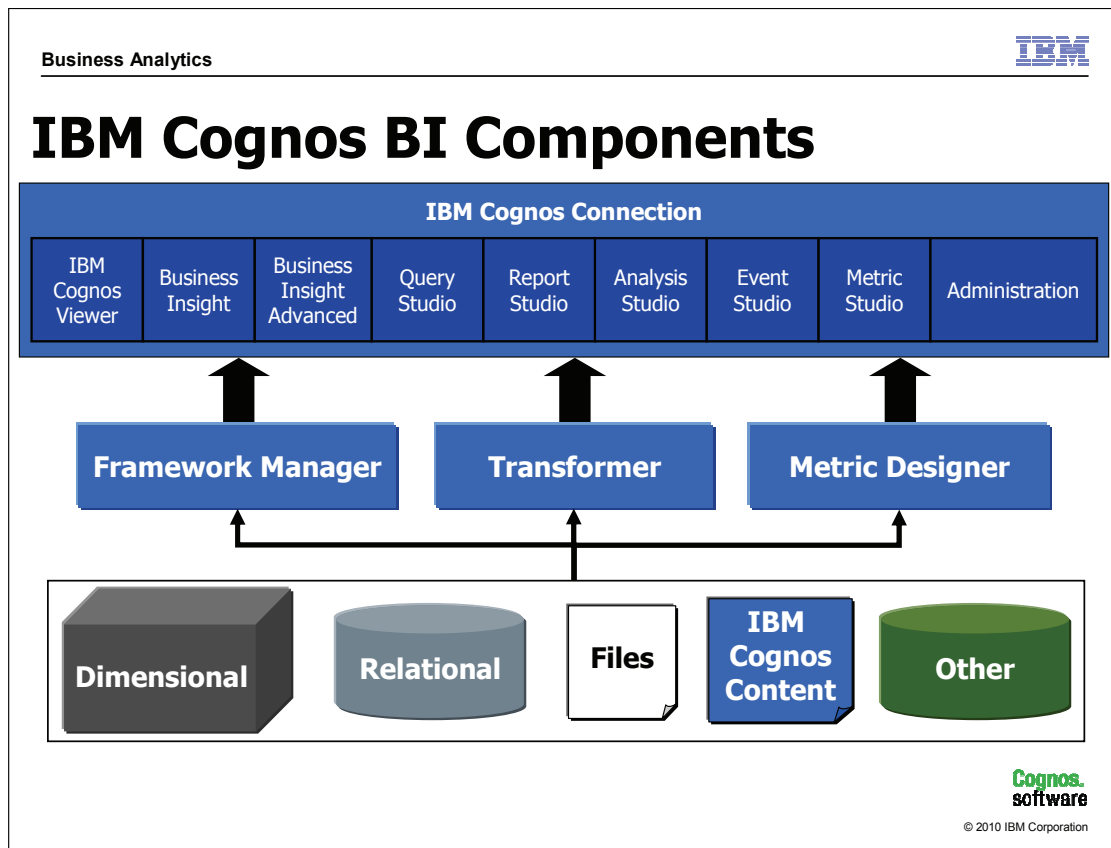
Use IBM Cognos as an open, enterprise-class, platform to answer the following:

- How are we doing? Measuring and monitoring performance with scorecards and dashboards tracks your key metrics.
- Why are we getting these results? Reporting and analysis let you see data, gain context, understand trends, and spot anomalies.
- What should we be doing? Planning, budgets, and forecasts let you set and share a reliable view of the future.

IBM Cognos consists of IBM Cognos BI and IBM Cognos FPM, which are based on a common underlying architecture.

This module focuses on IBM Cognos BI.

**INTERACTION - Highlighter:** Highlight each of the questions in the slide, as you mention them to students.



IBM Cognos BI capabilities provide reporting, analysis, scorecarding, dashboarding, business event management, and data integration from a wide array of data sources. IBM Cognos BI includes a portal (IBM Cognos Connection) for BI content presentation, management, and administration, and various studios to author and analyze corporate data. Framework Manager is a metadata modeling tool used to create basic query packages or relationally-based dimensional analysis packages. Transformer is a modeling tool used to create PowerCubes for dimensional analysis. Each publishes packages to IBM Cognos Connection, which are used by authors and analysts in the IBM Cognos studios. Metric Designer is used to create scorecard applications for use in Metric Studio.

**IBM Cognos Viewer** allows you to view reports

**IBM Cognos Business Insight** create personal dashboards

**IBM Cognos Business Insight Advanced** self-service reporting and analyses of data

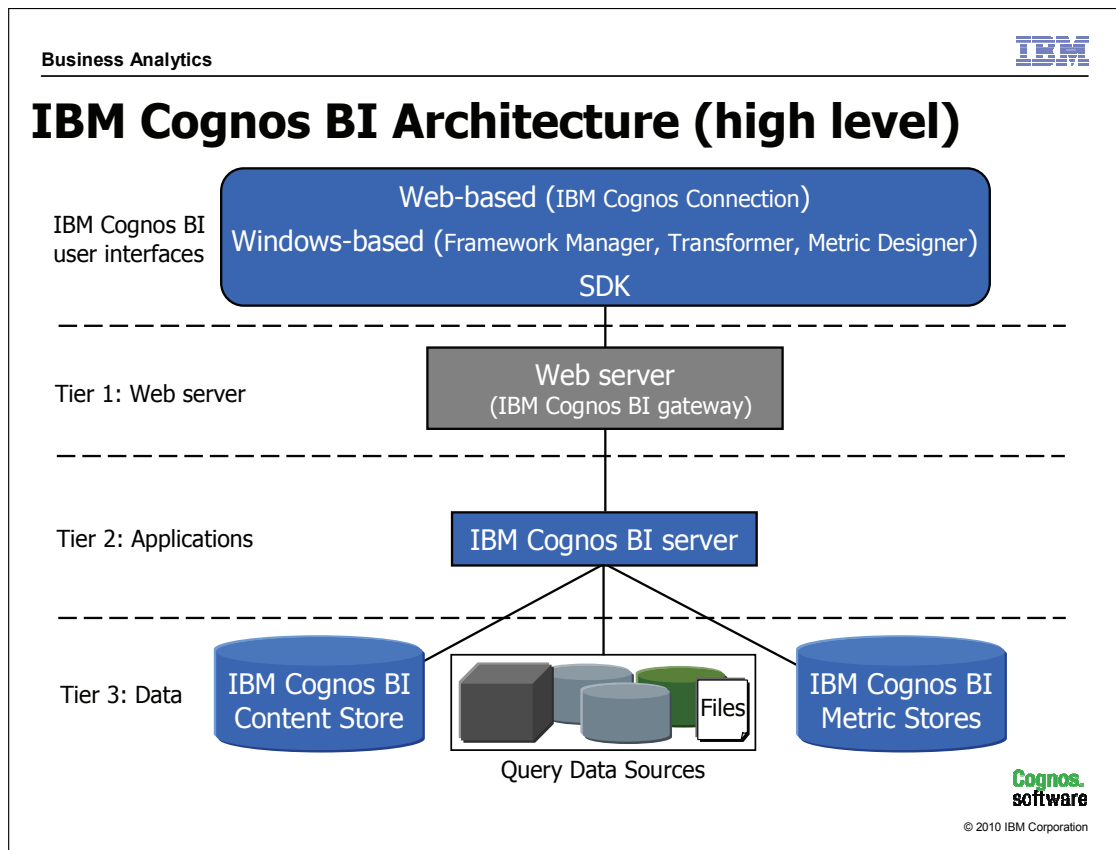
**Query Studio** helps you quickly answer a focused question

**Analysis Studio** performs analyses of data to discover trends, risks, and opportunities

**Report Studio** builds sophisticated reports, including multi-page, multiple-query reports against multiple data sources

**Event Studio** notifies users of key operational or performance-related events in their business

**Metric Studio** helps to manage organization's performance by monitoring and analyzing metrics



IBM Cognos BI is a Web-based architecture, which is separated into three tiers; Web server, applications, and data.

This architecture is scalable from a software and hardware perspective. For example, you can have several IBM Cognos servers for faster response times and load balancing.

IBM Cognos leverages existing corporate IT resources such as web servers, authentication providers, and application servers, and also supports multiple languages and locales in order to serve a global audience.

IBM Cognos is customizable to adopt your corporate look and feel and can be extended and integrated into other applications through the IBM Cognos SDK.

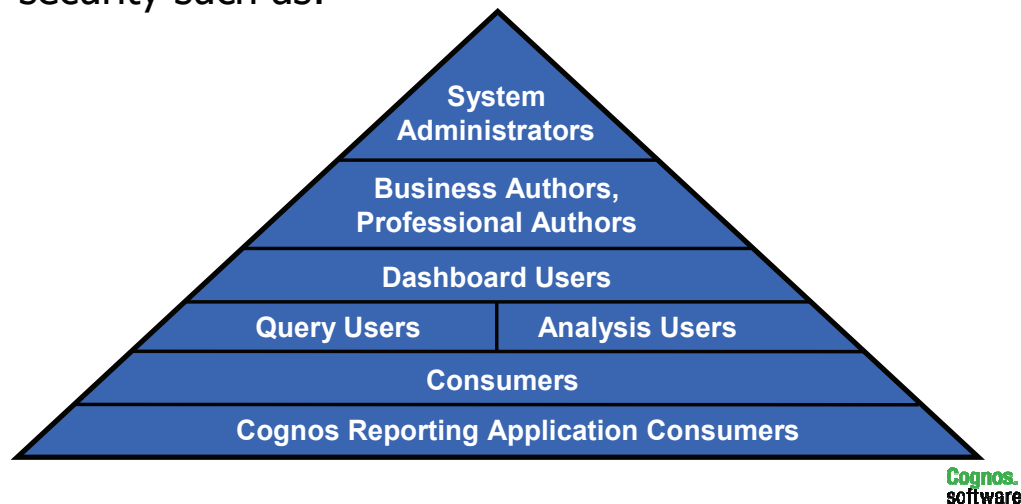
---

This is a high level diagram. Detailed information can be found in the IBM Cognos Administration course regarding scalability and flexibility. An example of flexibility is that SDK applications and Framework Manager can bypass the gateway and communicate directly with the IBM Cognos Server.

IBM Cognos BI, IBM Cognos Planning and IBM Cognos Controller all use the IBM Cognos architecture. Planning and Controller portions are not illustrated here.

## IBM Cognos BI Groups and Roles

- IBM Cognos BI provides default groups and roles for security such as:



© 2010 IBM Corporation

Take advantage of IBM Cognos BI groups and roles to secure your IBM Cognos environment and content. The group or role to which a user belongs determines how much access the user has to the IBM Cognos environment. For example, if you are a member of only the Consumers role, you cannot access any of the IBM Cognos studios.

Besides the default groups and roles, you can create new groups and roles that are specific to your IBM Cognos needs. Simply add users from your authentication source to specific groups and roles as required.

Not only can you use the groups and roles defined in the IBM Cognos Namespace to control access to contents, you can use groups in your authentication provider as well.

Using the IBM Cognos Namespace does not require the IT department and creates a more portable environment. There are many different groups and roles the administrator can use to restrict what you can see, what you can do, etc. See the Predefined Entries section of the Administration and Security Guide for detailed information on the predefined groups and roles as well as the anonymous user.

**INTERACTION - Star Sticker:** Ask students to put a star sticker next to their role(s).



## Demo 1: Explore IBM Cognos BI

### Purpose:

As an introduction to IBM Cognos BI, you will briefly explore one of the modeling tools, IBM Cognos Connection, and various BI studios to familiarize yourself with the environment and BI workflow.

### Task 1. Explore IBM Cognos Framework Manager.

You will examine a model in IBM Cognos Framework Manager.

1. From the **Start** menu, point to **All Programs\IBM Cognos 10**, and then click **IBM Cognos Framework Manager**.
2. Click **Open a project**, navigate to **D:\Program Files\IBM\cognos\c10\webcontent\samples\models\great\_outdoors\_warehouse**, and then click **great\_outdoors\_warehouse.cpf**.
3. Click **Open**.

---

In the demo, the following tasks are recommended for the course-specific audience:

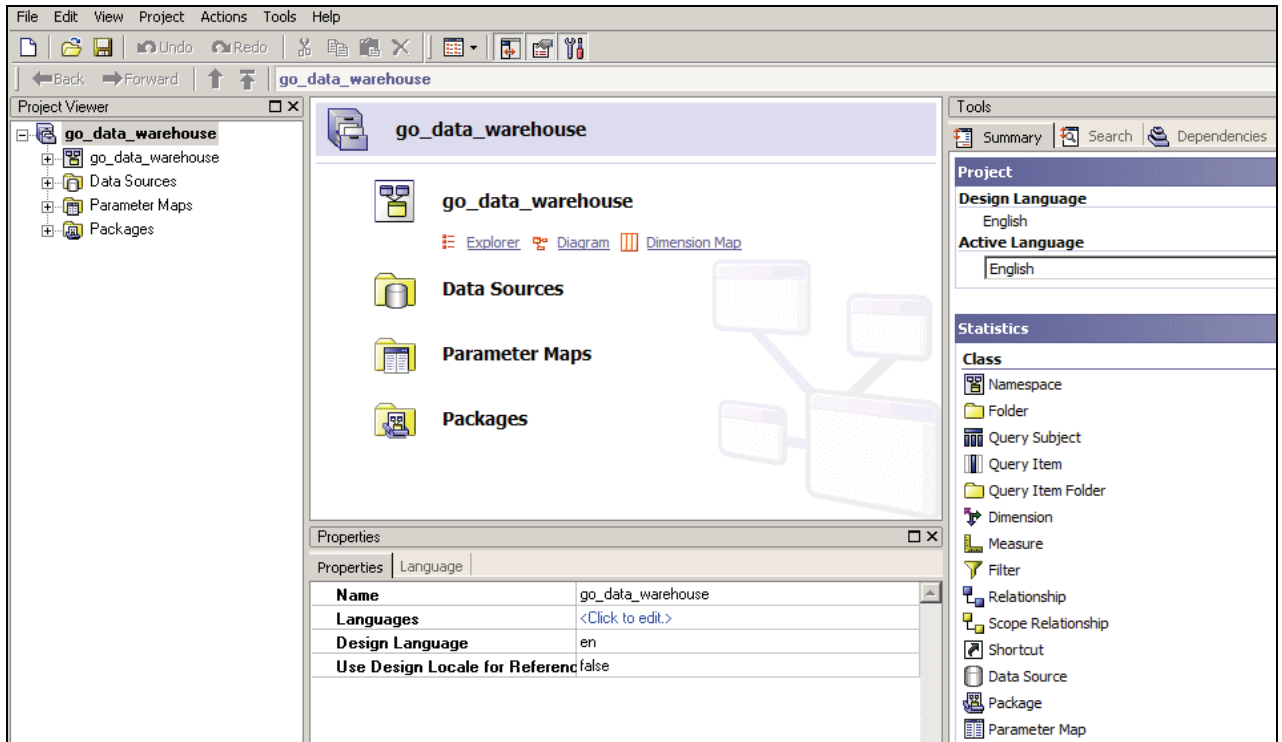
B5158: Tasks 1, 2, 3, 6, 7, 9, 10

In all tasks, ensure that you are logged in as admin/Education1!.

Keep in mind that you can change or go beyond the scope of this demo depending on your audience. For example, if this module is used in a course on Metric Studio, you may want to quickly show Metric Studio.

4. If security is enabled, log in as **admin** (password **Education1!**).

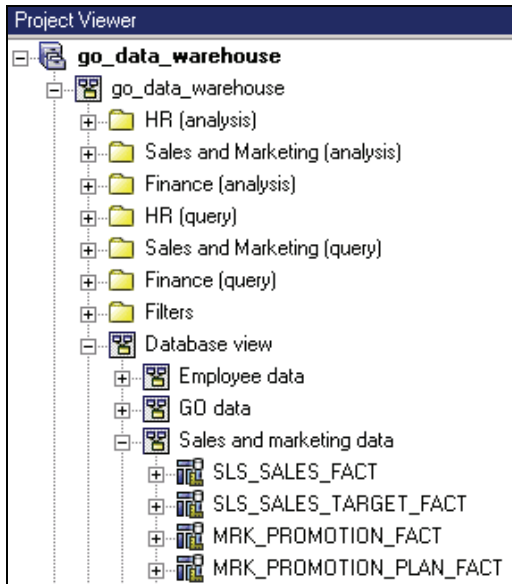
The result appears as follows:



IBM Cognos Framework Manager is one of the modeling tools used to create packages for use in the IBM Cognos studios. This particular tool is primarily used to create metadata models based on relational data sources. Its purpose is to reduce the complexity of the underlying data source by creating user-friendly views of the business for authors and analysts in the IBM Cognos environment. IBM Cognos Framework Manager can also be used to model and publish SAP BW metadata packages as well as publish other Online Analytical Processing (OLAP) packages such as Microsoft Analysis Services cubes.

5. In the **Project Viewer** pane, expand **go\_data\_warehouse\Database view\Sales and marketing data**.

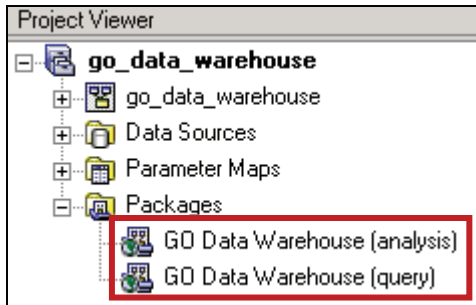
The result appears as follows:



Metadata modelers work in a project with several object types to create organized views of the business with any required business logic, and remove any ambiguity that might occur. These views are then placed in packages and published to IBM Cognos Connection.

6. Collapse **go\_data\_warehouse**, and then expand **Packages**.

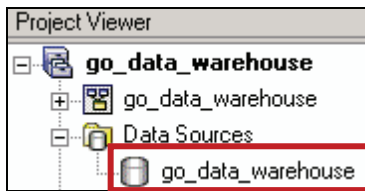
The result appears as follows:



Packages can be a subset of the metadata model, or the entire model depending on the requirements. Once published, authors and analysts can choose from the objects contained in the package to create reports, analyses, and so on. Take note of the package names, as you will see them in IBM Cognos Connection shortly.

7. Expand **Data Sources**.

The result appears as follows:



Data Sources contain the information that IBM Cognos uses to connect to and retrieve data from the underlying data sources cited in the model.

8. Close **IBM Cognos Framework Manager**.

## Task 2. Explore IBM Cognos Connection.

You will review the centralized portal and navigate the content structure of packages and reports.

1. Start **Internet Explorer** and navigate to **http://localhost:88/ibmcognos**.
2. If security is enabled, log in as **admin**, password **Education1!**.

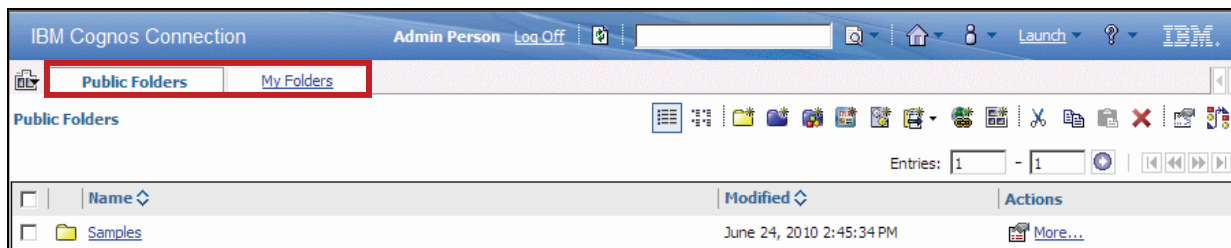
The result appears as follows:



By default, you are presented with a welcome page from which you can choose several activities to perform, such as to query or analyze your data, or perform administrative tasks. Depending on the role to which you belong to as a user, you may have more or less capabilities in the IBM Cognos environment.

### 3. Click **IBM Cognos content**.

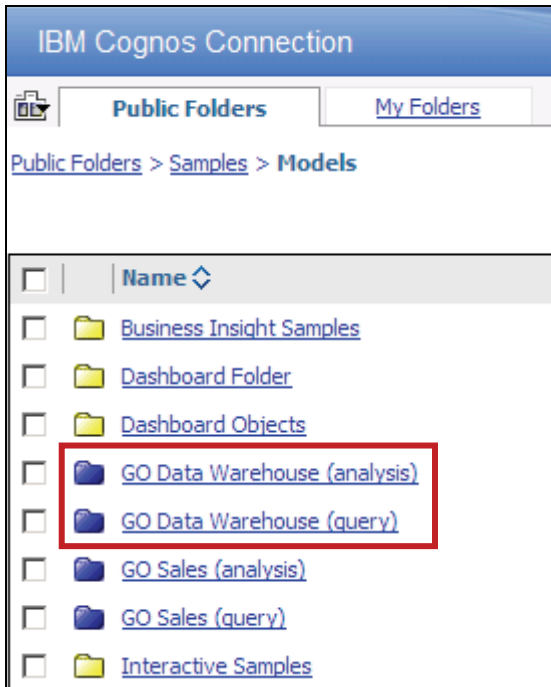
The result appears as follows:



Here you will find public content, found on the Public Folders tab, or personal content, found on the My Folders tab. You also have the ability to create more personal tabs to suit your needs or to share with others. Content, including reports, analyses, and portal pages, are managed and organized in this area.

4. Click **Samples**, and then click **Models**.

The result appears as follows:

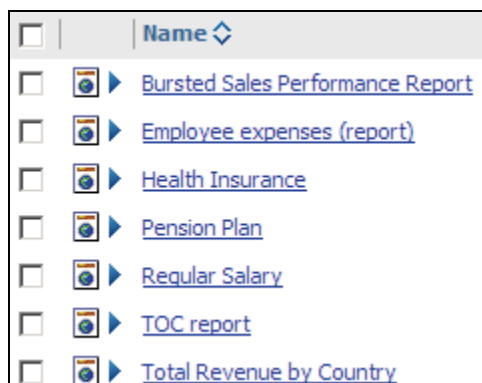


Notice the packages named GO Data Warehouse (analysis) and GO Data Warehouse (query). These are the packages you saw in the IBM Cognos Framework Manager project earlier that have been published here.

Packages, by default, are indicated by a blue folder, and regular folders are yellow in color. Both types of folders can contain reports, analyses and other content.

5. Click **GO Data Warehouse (query)**, and then click **Report Studio Report Samples**.

The result appears as follows:



Here you see several reports based on the GO Data Warehouse (query) package, a model based on a relational data source.



### Task 3. View reports in IBM Cognos.

You will open an existing report based on a relational package and a report based on a dimensional data package.

1. Click **Total Revenue by Country**.

The result appears as follows:

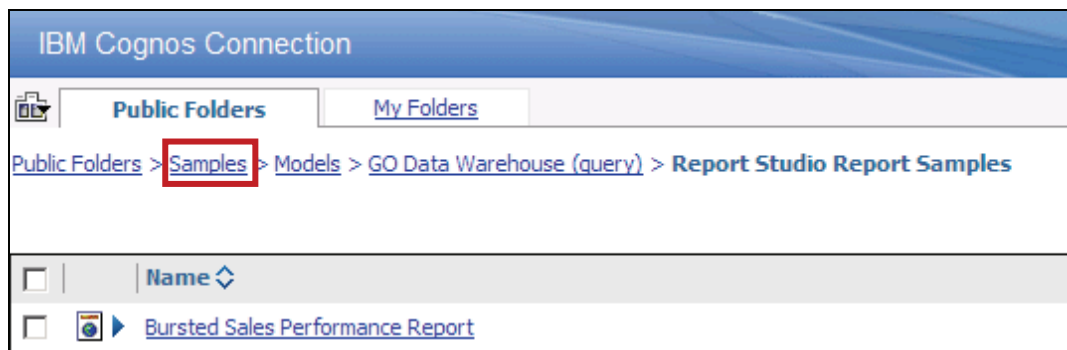
		Revenue	Golf Equipment	Outdoor Protection	Personal Accessories	Camping Equipment	Mountaineering Equipment	Total(Product line)
Asia Pacific	Australia	4 Golf only	3,186,790.6	1,551.16	1,827,033.78			5,015,375.54
		Beach Beds Pty Ltd.	4,137,155.17	293,119.01	5,330,905.74	15,788,255.05		25,549,434.97
		Black Stump Camping Supplies		7,719	2,464,224.32	1,262,948.49	462,817.16	4,197,708.97
		Blue Mountains Golfing Company	8,257,037.18	69	1,797,644.23			10,054,750.41

The report is displayed in IBM Cognos Viewer. When the Total Revenue by Country link was clicked, the report was run and the underlying relational data source was queried for data. This query is needed because there was no saved output for the report. If the report had been previously run and saved, the saved version, by default, would appear in IBM Cognos Viewer. The report would display a snapshot of the data at the time it was last run and in the format specified by the person who ran the report. Formats include HTML, PDF, Excel, and XML.

2. Click **Return**  in the top right corner.

You will now run a report based on an OLAP data source.

3. Click the **Samples** link shown below:



Using the path illustrated here, you can easily navigate the content found in IBM Cognos.

4. Click **Cubes**, click **Sales and Marketing (cube)**, and then click **Report Studio Report Samples**.

- Click **Top Retailers by Country**, from the prompt select **Extra Sport**, and then click **Finish**.

A section of the result appears as follows:



Again, the report is displayed in IBM Cognos Viewer. This report is based on a PowerCube package and uses dimensional functions to perform common OLAP-style queries to compare revenue from selected top retailers for product sets across various time periods.

- Click **Return** in the top right corner.

## Task 4. Create an analysis.

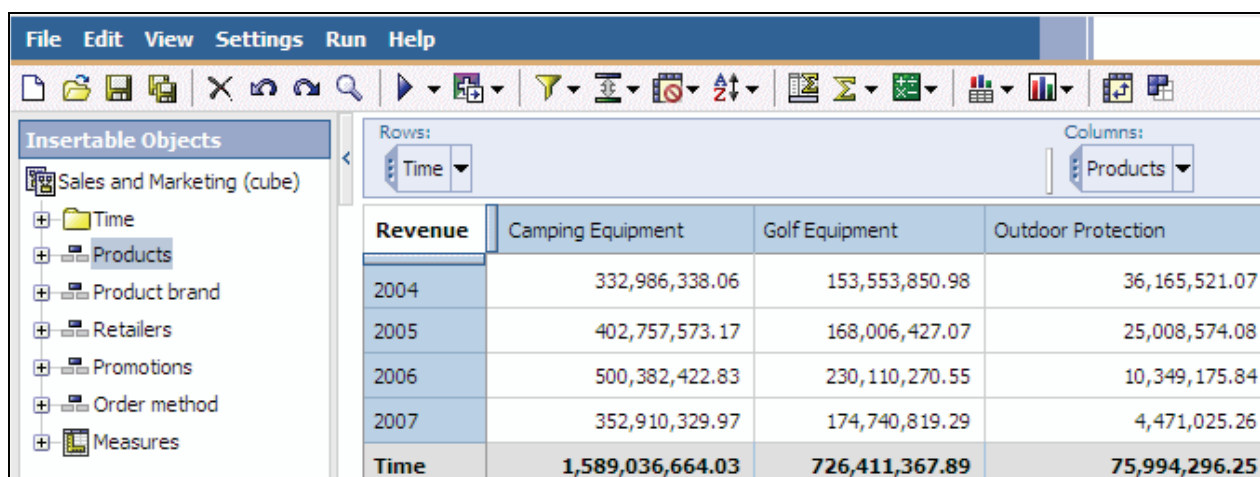
With Analysis Studio, you will create a report, drill down to lower levels of detail, filter for the top two product types in a product line, and then drill through to another report for further analysis of the data.

1. Click **Launch** in the top right corner, and then click **Analysis Studio**.

Analysis Studio starts in a new browser window.

2. Click **Default Analysis**, and then click **OK**.

A section of the result appears as follows:



The screenshot shows the IBM Cognos Analysis Studio interface. On the left is the 'Insertable Objects' pane with a tree view containing 'Sales and Marketing (cube)', 'Time', 'Products', 'Product brand', 'Retailers', 'Promotions', 'Order method', and 'Measures'. The main area displays a pivot table with 'Time' in the rows and 'Products' in the columns. The table shows revenue data for the years 2004 through 2007, categorized by Camping Equipment, Golf Equipment, and Outdoor Protection. A total row for 'Time' is at the bottom.

Revenue	Camping Equipment	Golf Equipment	Outdoor Protection
2004	332,986,338.06	153,553,850.98	36,165,521.07
2005	402,757,573.17	168,006,427.07	25,008,574.08
2006	500,382,422.83	230,110,270.55	10,349,175.84
2007	352,910,329.97	174,740,819.29	4,471,025.26
<b>Time</b>	<b>1,589,036,664.03</b>	<b>726,411,367.89</b>	<b>75,994,296.25</b>

Analysis Studio opens with the default analysis. You can now drill down or up on the columns and rows to analyze your data.

3. Click the **Camping Equipment** column header to drill down on camping equipment data.

- Click the **2007** row header to drill down on 2007 data.

The result appears as follows:

Rows: 2007		Columns: Camping Equipme...				
Revenue	Cooking Gear	Lanterns	Packs	Sleeping Bags	Tents	Camping Equipment
2007 Q 1	25,062,258.57	11,830,104.37	33,518,289.67	28,058,995.76	47,030,494.69	145,500,143.06
2007 Q 2	24,598,809.14	12,010,021.92	36,703,402.93	29,086,477.17	51,072,191.35	153,470,902.51
2007 Q 3	8,652,732.64	4,194,349.25	12,936,104.39	11,584,535.24	16,571,562.88	53,939,284.40
2007 Q 4						
<b>2007</b>	<b>58,313,800.35</b>	<b>28,034,475.54</b>	<b>83,157,796.99</b>	<b>68,730,008.17</b>	<b>114,674,248.92</b>	<b>352,910,329.97</b>

You will now identify the top two sellers for Camping Equipment using the Top or Bottom feature.

- On the toolbar, click **Top or Bottom** .
- In the **Define top or bottom filter** dialog box at the bottom of the page, click **Camping Equipment**.
- Under **Top or bottom**, select **Top**, and then under **Number of items**, type **2**.

The results appear as follows:

Define top or bottom filter - Camping Equipment

Limit the results to the top or bottom items of a selected set. If the selected set contains a filter, the applies only to the results of the filter.

<b>Top or bottom:</b>	<b>Number of items:</b>	<b>By measure:</b>
<input type="radio"/> None	<input checked="" type="radio"/> 2	Default (Revenue)
<input checked="" type="radio"/> Top	<input type="radio"/> 10 %	<b>For row:</b>
<input type="radio"/> Bottom	<input type="radio"/> Σ 10	Default

OK
Cancel

8. Click **OK**.

The analysis now appears with the top two selling items under Camping Equipment based on Revenue.

The result appears as follows:

Rows:

2007

Columns:

38

Camping Equipme...

Filters are applied. See the [Properties](#) pane for more details.

Revenue	Tents	Packs	Subtotal (included)	Camping Equipment
2007 Q 1	47,030,494.69	33,518,289.67	80,548,784.36	145,500,143.06
2007 Q 2	51,072,191.35	36,703,402.93	87,775,594.28	153,470,902.51
2007 Q 3	16,571,562.88	12,936,104.39	29,507,667.27	53,939,284.40
2007 Q 4				
2007	114,674,248.92	83,157,796.99	197,832,045.91	352,910,329.97

9. Click **2007** to drill up.10. From the data tree, drag **Order method** to the columns.




A section of the result appears as follows:

Revenue	Telephone	Sales visit	Web	Sp
2004	43,315,033.73	32,809,658.63	68,436,913.91	
2005	26,588,351.09	24,028,463.24	151,936,538.15	
2006	10,139,286.41	19,056,607.94	238,215,023.04	
2007	5,132,030.02	13,154,582.08	175,571,842.62	
<b>Time</b>	<b>85,174,701.25</b>	<b>89,049,311.89</b>	<b>634,160,317.72</b>	

If configured, you can drill through to a related report to obtain more details about your analysis. This feature works for all report types, such as Report Studio reports and Query Studio reports. You will now drill through to a related report for this analysis.

11. Right-click the intersection of **Telephone** and **2007**, point to **Go To**, and then click **Related Links**.

The result appears as follows:

Available links:	
Name	Target
 <a href="#">DrillToPPS</a>	Public Folders > Samples > Cubes >
 <a href="#">MeasureDrill</a>	Public Folders > Samples > Cubes >
 <a href="#">Packagedrill</a>	Public Folders > Samples > Cubes >

You are presented with three related links.

12. Click **MeasureDrill**.

You are presented with a report displaying detailed information related to your analysis that is filtered for the year 2007 and the Telephone order method type.

A section of the result appears as follows:

Americas				
2007				
Order method type	Product type	Product	Revenue	Planned revenue
Telephone	Binoculars	Seeker 35	79,823.94	84,021.42
		Seeker 50	52,234.00	54,985.10
		Seeker Extreme	22,560.20	23,747.10
		Seeker Mini	17,881.60	18,823.20
		Opera Vision		
		Ranger Vision		
	<b>Binoculars</b>		<b>172,499.74</b>	<b>181,576.82</b>
	Climbing Accessories	Granite Carabiner	18,952.00	18,952.00
		Granite Belay	29,725.50	31,290.00

13. Close **IBM Cognos Viewer**, and then close **Analysis Studio**.
14. Click **OK** when prompted to navigate from the page without saving changes.

## Task 5. Create an ad hoc query.

You will use Query Studio to query a relational package and create a grouped list report. Then, you will create a new grouped list report based on a dimensionally modeled relational package that you will drill down on for more detail.

1. In **IBM Cognos Connection**, click **Home**  in the top right corner.

By default, this action brings you back to the root of Public Folders. You have the option to set a different location as your home page if you wish.

When you are not in a package folder, you will be prompted to select a package when you start a studio.

2. From the **Launch** menu, click **Query Studio**.
3. In the **List of all packages** section, click **Samples**, click **Models**, and then click **GO Data Warehouse (query)**.

This is a package based on a relational model. OLAP-style queries are not possible with this package.

4. In the data tree to the left, expand the **Sales and Marketing (query)** folder and the **Sales (query)** namespace, and then add the following items to the report by double-clicking the query item:
  - **Time** query subject: **Year** query item; **Month** query item
  - **Products** query subject: **Product line** query item; **Product type** query item; **Product** query item
  - **Sales fact** query subject: **Revenue** query item
5. Click the **Year** column header, and then Ctrl-click **Month**, **Product line**, and **Product type**.

---

**Task 5, step 4:** Tell students to wait for the appearance of the data item in the list, before adding more items.




6. On the **toolbar**, click **Group** .

A section of the result appears as follows:

Year	Month	Product line	Product type	Product	Revenue
2004	April	Camping Equipment	Cooking Gear	TrailChef Canteen	176,147.19
				TrailChef Cook Set	683,365.59
				TrailChef Cup	94,837.97
				TrailChef Deluxe Cook Set	931,220.16
				TrailChef Double Flame	536,370
				TrailChef Kettle	391,123.76
				TrailChef Kitchen Kit	316,457
				TrailChef Single Flame	746,007.3
				TrailChef Utensils	156,793.08
				TrailChef Water Bag	564,566.87
			<b>Cooking Gear</b>		<b>4,596,888.92</b>
			Lanterns	EverGlow Butane	128,730.1

This is a basic list report with some grouping applied to make the report easier to read. You will now create a similar report but using a dimensional package.

In order to create a report with a different package, you will need to close this session of Query Studio, and launch the studio with the different package.




7. Click **IBM Cognos Connection**  in the top right corner, and then click **No** if prompted to save changes.
8. From the **Launch** menu, click **Query Studio**.
9. On the **List of all packages**, click **Samples**, click **Models**, and then click **GO Data Warehouse (analysis)**.

This package is based on a dimensionally modeled relational (DMR) model.

This means that the model developer has provided dimensional information to a relational model to allow authors and analysts to perform OLAP-style queries at run time on a relational data source.

10. In the data tree to the left, expand the **Sales and Marketing (analysis)** folder and the **Sales** namespace, and then add the following items to the report by dragging each to the report layout:

- **Time** dimension: **Year** level; **Month** level
- **Products** dimension: **Product line** level; **Product type** level; **Product** level
- **Sales fact** dimension: **Revenue** fact

Note: Instead of query subjects and query items, you are now dealing with dimensions , levels , and facts .

11. Group the report on **Year**, **Month**, **Product line**, and **Product type**.

The result appears as follows:

Year	Month	Product line	Product type	Product	Revenue
2004	<u>January 2004</u>	Camping Equipment	Cooking Gear	<u>TrailChef Canteen</u>	240,887.99
				<u>TrailChef Cook Set</u>	747,929.81
				<u>TrailChef Cup</u>	103,359.04
				<u>TrailChef Deluxe Cook Set</u>	975,374.4
				<u>TrailChef Double Flame</u>	672,015.15
				<u>TrailChef Kettle</u>	438,465.42
				<u>TrailChef Kitchen Kit</u>	446,124.18
				<u>TrailChef Single Flame</u>	775,939.5
				<u>TrailChef Utensils</u>	383,800.55
				<u>TrailChef Water Bag</u>	387,150.31
			<b>Cooking Gear</b>		<b>5,171,046.35</b>
			Lanterns	<u>EverGlow Butane</u>	155,000.72
				<u>EverGlow Double</u>	47,448.93

Notice that this report contains underlined items, in this case, Month and Product. You can drill down on these items to further analyze your data. The same type of behavior applies to OLAP data sources.

12. Click **January 2004**, and then click **TrailChef Water Bag**.

The result appears as follows:

Month	Day	Product type	Product	Product details	Revenue
January 2004	<a href="#">20040112</a>	Cooking Gear	TrailChef Water Bag	<a href="#">TrailChef Water Bag 1110</a>	317,591.04
			TrailChef Water Bag		317,591.04
		Cooking Gear		317,591.04	
		20040112			
	<a href="#">20040113</a>	Cooking Gear	TrailChef Water Bag	<a href="#">TrailChef Water Bag 1110</a>	49,469.89
			TrailChef Water Bag		49,469.89
		Cooking Gear		49,469.89	
		20040113			
	<a href="#">20040114</a>	Cooking Gear	TrailChef Water Bag	<a href="#">TrailChef Water Bag 1110</a>	15,450.24
			TrailChef Water Bag		15,450.24
		Cooking Gear		15,450.24	
		20040114			
	<a href="#">20040122</a>	Cooking Gear	TrailChef Water Bag	<a href="#">TrailChef Water Bag 1110</a>	4,639.14
			TrailChef Water Bag		4,639.14
		Cooking Gear		4,639.14	
		20040122			
January 2004					387,150.31
Summary					387,150.31

The report is now focused on the dates TrailChef Water Bag items were sold in the month of January 2004.

13. Right-click **TrailChef Water Bag 1110**, and then click **Drill Up**.
14. Right-click **20040112**, and then click **Drill Up**.

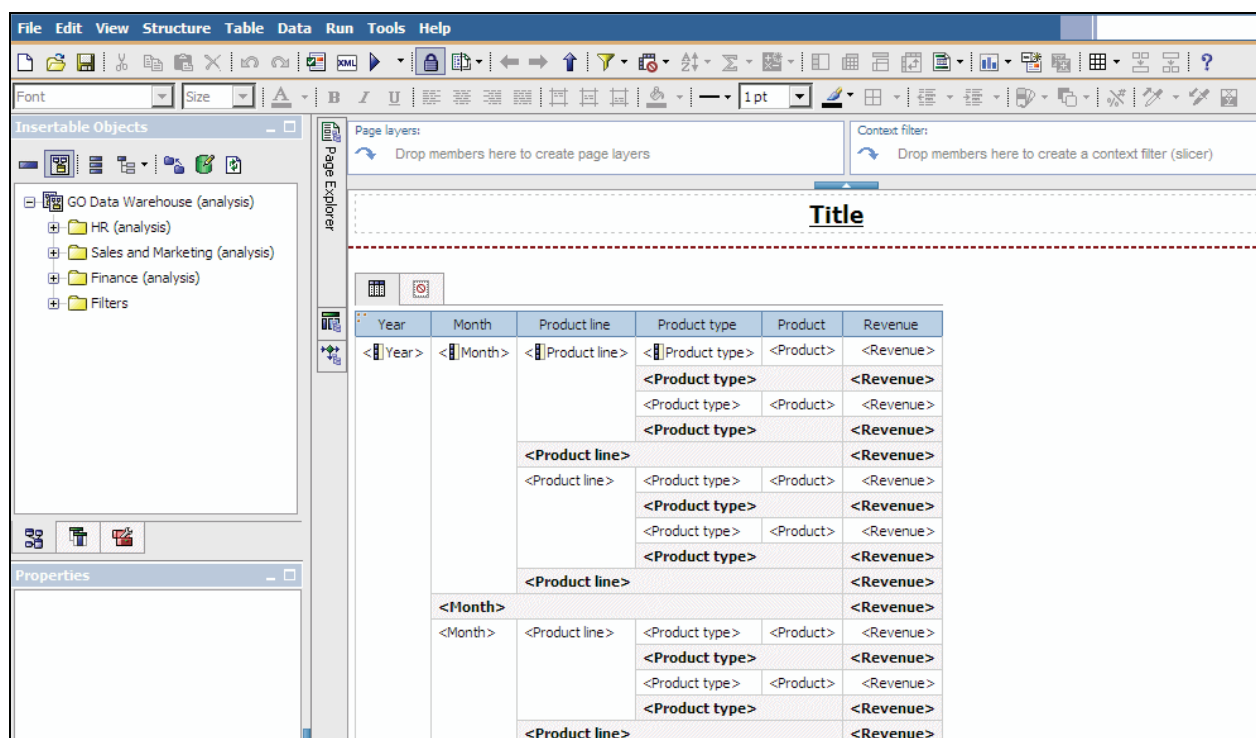
You will now open this report in Report Studio to add a corporate graphic and a prompt page.

## Task 6. Enhance an ad hoc report in Report Studio.


You will enhance a report that was created in Query Studio, by using Report Studio to add a corporate graphic and a prompt. You will then save the report to IBM Cognos Connection.

1. Under **Menu**, on the left side of the page, click **Manage File**, and then click **Open in Report Studio**.

A section of the result appears as follows:



The report, which opens in Report Studio, can now be enhanced with features that are not available in Query Studio. You are now in a design environment and if you wish to see the data returned by the report, you must run the report.

2. Under **Insertable Objects**, click the **Toolbox**  tab.
3. Drag an **Image** object to the left of the **Title** box.

The result appears as follows:



4. Right-click the image item in the report layout, and then click **Edit Image URL**.
5. Click **Browse**, in the list, select **logo\_great\_outdoors.gif**, and then click **OK**.
6. Click **OK**, and click **Title** to remove focus from the image object.

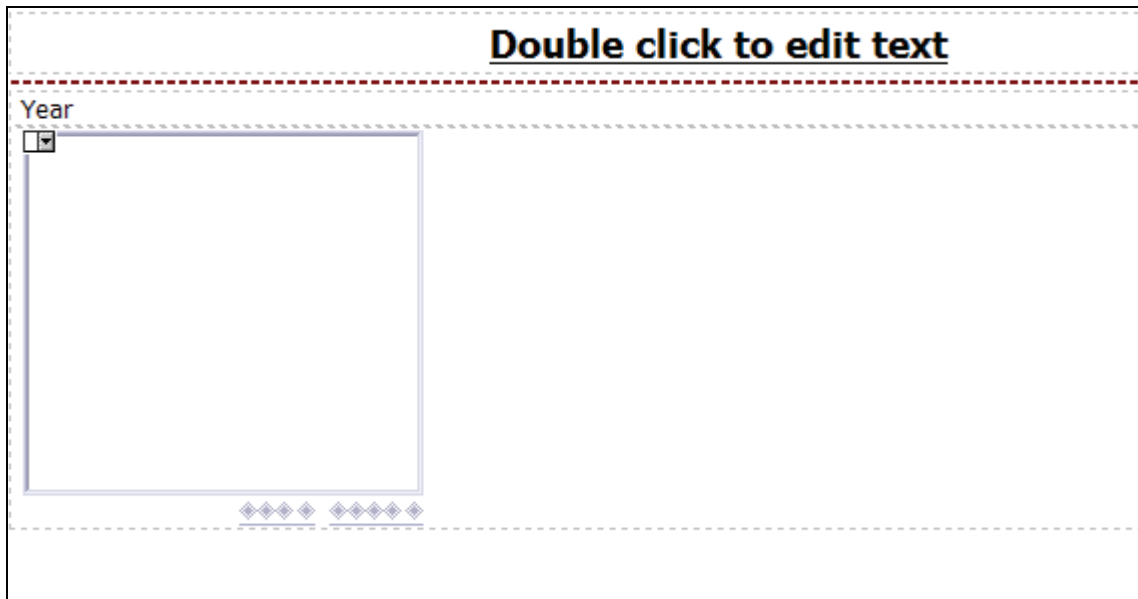
The result appears as follows:




You will now add a prompt page to your report to allow users to filter on a particular year of data.

7. In the report layout, click the **Year** column header, and then on the toolbar, click **Build Prompt Page** .

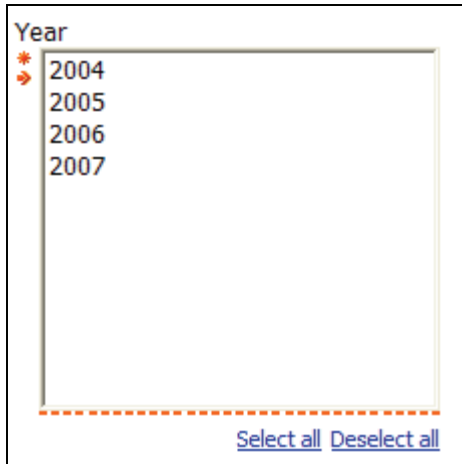
The result appears as follows:



A prompt page is automatically generated.


8. On the toolbar, click **Run Report** .

The result appears as follows:




9. Select **2007**, and then click **Finish**.

A section of the result appears as follows:


IBM Cognos Viewer					
					
Title					
Year	Month	Product line	Product type	Product	Revenue
2007	<a href="#">January 2007</a>	Camping Equipment	Cooking Gear	<a href="#">TrailChef Canteen</a>	336,561.18
				<a href="#">TrailChef Cook Set</a>	1,207,632.07
				<a href="#">TrailChef Cup</a>	225,793.35
				<a href="#">TrailChef Deluxe Cook Set</a>	1,489,727.47
				<a href="#">TrailChef Double Flame</a>	863,494.02
				<a href="#">TrailChef Kettle</a>	685,705.59
				<a href="#">TrailChef Kitchen Kit</a>	570,860.87
				<a href="#">TrailChef Single Flame</a>	1,252,298.49
				<a href="#">TrailChef Utensils</a>	387,082.08
				<a href="#">TrailChef Water Bag</a>	759,321.51
			<b>Cooking Gear</b>		<b>7,778,476.63</b>
			Lanterns	<a href="#">EverGlow Butane</a>	219,702.32
				<a href="#">EverGlow Double</a>	76,812.05

The report displays the image you inserted as well as data for the year 2007.

This is a simple example of enhancing a report with Report Studio. Report Studio is capable of many advanced authoring techniques to create professional, dynamic, and robust reports.

10. Close **IBM Cognos Viewer**, and then in **Report Studio**, on the **toolbar**, click **Save** .
11. Under **Save in**, click **My Folders**, and then in the **Name** box, type **Product Revenue: Select Year**.
12. Click **Save**, and then close **Report Studio**.



13. In **Query Studio**, click **IBM Cognos Connection** , and then click **No** to exit without saving the report.
14. In **IBM Cognos Connection**, click the **My Folders** tab.

The result appears as follows:



The report that you saved is displayed. You can save your report to any location that you have access to. You can also copy/cut and paste your report and other objects to organize content in the portal.

## Task 7. Customize a dashboard in Business Insight.


You will use Business Insight to customize and use a dashboard. You will modify a filter, delete an element, add a report part, save the dashboard, and add an annotation to the report data.

1. In **IBM Cognos Connection**, from the **Launch** menu in the top right corner, click **Business Insight**.
2. On the **IBM Cognos Business Insight Getting Started Page**, click **Open Existing**, navigate to **Samples > Models > Business Insight Samples > Marketing Dashboard**, and then click **Open**.

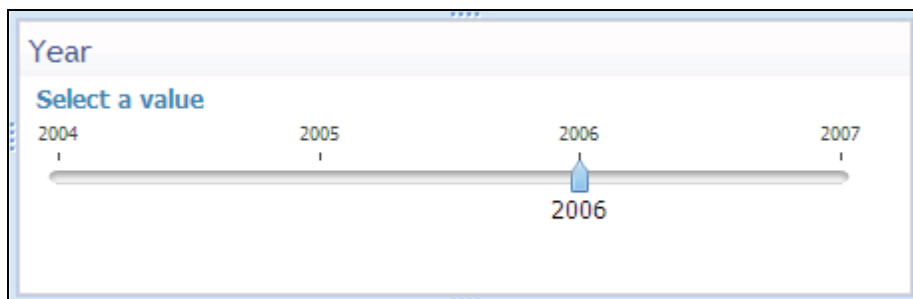
The dashboard opens in Business Insight, displaying a Slider Filter, a Select Value Filter, and four report widgets.

---

**Task 7:** On the toolbar, click Refresh All to refresh data in the widgets on the dashboard.

3. From the **Actions Menu** , click **Save As**, and then save the dashboard in **My Folders** as **My Marketing Dashboard**.
4. In the **Slider Filter**, drag the **slider** to **2006**.

The Slider Filter appears as follows:



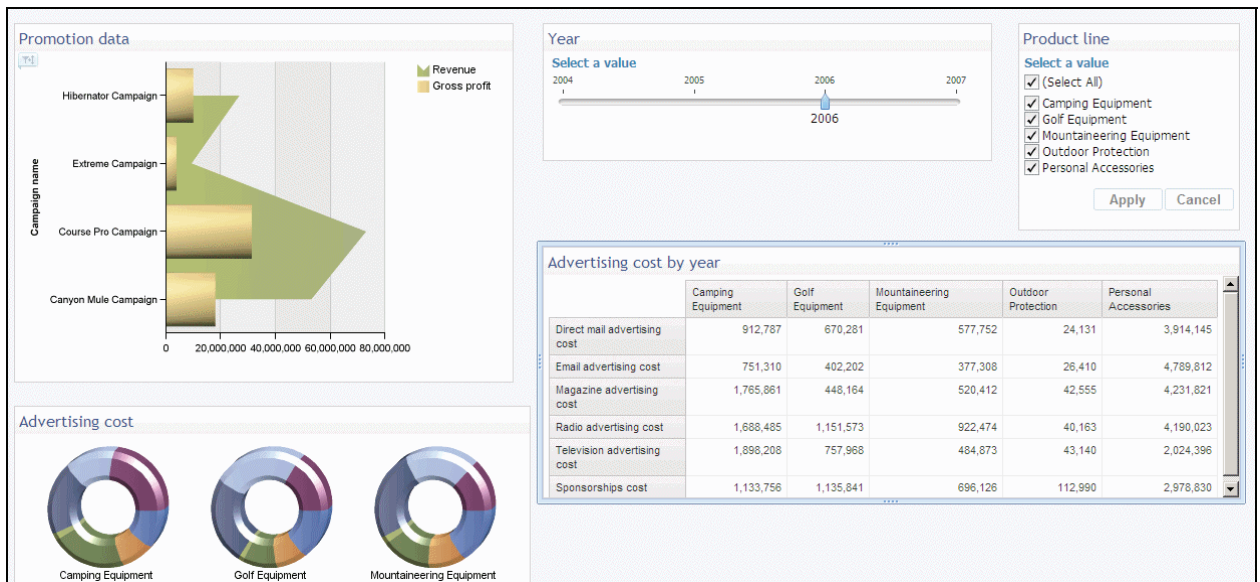
The report widgets that communicate with this Slider Filter will refresh their displays to reflect the modified filter requirements.


You want to delete one report widget to customize your dashboard.

5. Click the **Promotion plan versus promotion revenue** report widget, click the widget **Actions** menu, click **Remove from Dashboard**, and then click **Remove** to confirm.

You want to change the layout of the dashboard.

6. Click the **Slider Filter** and drag it near the top of the canvas, and then repeat with the **Select Value Filter** and the **Advertising cost by year** report widget. A section of the results appear as follows:



7. On the **Business Insight toolbar**, click **Content** .
- On the right side, a content pane displays Content and Toolbox tabs.
8. On the **Content** tab, navigate through the tree by expanding **Public Folders > Samples > Models > GO Data Warehouse (query) > Report Studio Report Samples**.

You can see the reports stored in the folder. Usually, a report would be the end of your navigation capability, however Business Insight allows you to leverage report parts in existing reports.

9. Click the arrow beside the **Total Revenue by Country** report.
- The tree expands to display charts and lists that exist in the current report. You want use one of these report parts in your dashboard.


10. Click **Crosstab11111**, and drag it to the canvas, below the **Advertising cost by year** report widget.

A new report widget is placed on the canvas, and the crosstab is displayed.

You want to add a comment about the data displayed in the chart. First, you will save the dashboard.

11. From the **Business Insight** toolbar, click **Save**.
12. In the new crosstab report widget, click the intersection of **Harbour Pty Ltd.** and **Camping Equipment**.

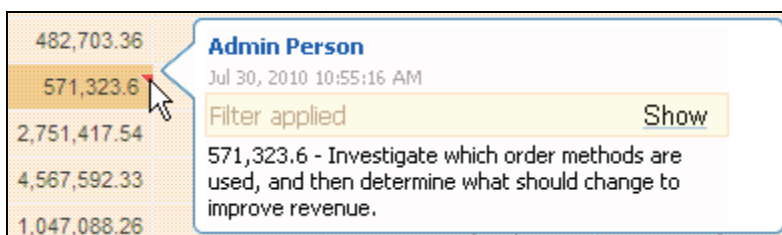
The crosstab cell with 571,323.6 is highlighted.

13. Click the mouse cursor over the top of the report widget to reveal the widget toolbar, click **Comment** , click **Add Comment**, and then in the text box enter the following comment: **Investigate which order methods are used, and then determine what should change to improve revenue.**
14. Click **Done**.

A small red triangle at the top right of the cell indicates that a comment is available for reviewers.

15. Hover the mouse cursor the **red triangular marker**.

The comment displays, with the name of the author and the date and time that the comment was added. Reviewers who see this dashboard, can review this comment, and add their own comments.



16. From the **Business Insight** toolbar, click **Save**.
17. Close the dashboard window to return to **IBM Cognos Connection**.

## Task 8. Author a report in Business Insight Advanced.


You will use Business Insight Advanced to author a report, include a calculation for analysis of the data, and customize your data by changing measures.

1. In **IBM Cognos Connection**, from the **Launch** menu, click **Business Insight Advanced**.
2. In the **List of all packages**, click **Samples**, click **Models**, and then click **GO Data Warehouse (analysis)**.
3. Click **Create new**, and then double-click **Crosstab** to open a new crosstab report.

Business Insight Advanced opens, with a report layout area on the left, and the data tree displayed in the Insertable Objects pane on the right. By default, the tree displays members.

4. In the **Insertable Objects** pane, on the **Source** tab, expand the **Sales and Marketing (analysis)** folder, and then expand the **Sales** folder.
5. Expand **Time**.

There are 4 members displayed in Time: 2004, 2005, 2006, and 2007.

6. In the toolbar above the **Source** tab, click **View Metadata Tree** .
7. On the **Source** tab, expand the **Sales and Marketing (analysis)** folder, expand the **Sales** namespace, and then expand the **Time** dimension.

The Time hierarchy is displayed. This is different from step 4, where only the members were displayed.


8. Expand the **Time** hierarchy.

Under the Time hierarchy, the Members folder is displayed, along with levels such as Year and Quarter.

9. Expand the **Members** folder, and the **Time** member.

Within the Members folder, is the Time member, and the members 2004, 2005, 2006, and 2007.

With dimensional data, you can quickly select the view which displays the elements you want to work with by using the View Members Tree button or the View Metadata Tree button.

10. In the toolbar above the **Source** tab, click **View Members Tree** .
11. From the **Insertable Objects** pane > **Source** tab, expand the **Sales and Marketing (analysis)** folder > **Sales** folder, and then add the following items to the report by dragging each to the report layout:
- **Columns** drop zone: **Time**
  - **Rows** drop zone: **Products**
  - **Measures** drop zone: **Sales fact > Revenue**

The results appear as follows:

Revenue	2004	2005	2006	2007	Time
Camping Equipment	332,986,338.06	402,757,573.17	500,382,422.83	352,910,329.97	1,589,036,664.03
Personal Accessories	391,647,093.61	456,323,355.9	594,009,408.42	443,693,449.85	1,885,673,307.78
Outdoor Protection	36,165,521.07	25,008,574.08	10,349,175.84	4,471,025.26	75,994,296.25
Golf Equipment	153,553,850.98	168,006,427.07	230,110,270.55	174,740,819.29	726,411,367.89
Mountaineering Equipment		107,099,659.94	161,039,823.26	141,520,649.7	409,660,132.9
<b>Products</b>	<b>914,352,803.72</b>	<b>1,159,195,590.16</b>	<b>1,495,891,100.9</b>	<b>1,117,336,274.07</b>	<b>4,686,775,768.85</b>

The live data values automatically populate the crosstab as you add each element, and there is no need to run the report separately as you develop it.

12. From the **View** menu, click **Page Design**.


The results appear as follows:

Revenue	<#children(Time)#>	<#Time#>
<#children(Products)#>	<#1234#>	<#1234#>
<#Products#>	<#1234#>	<#1234#>

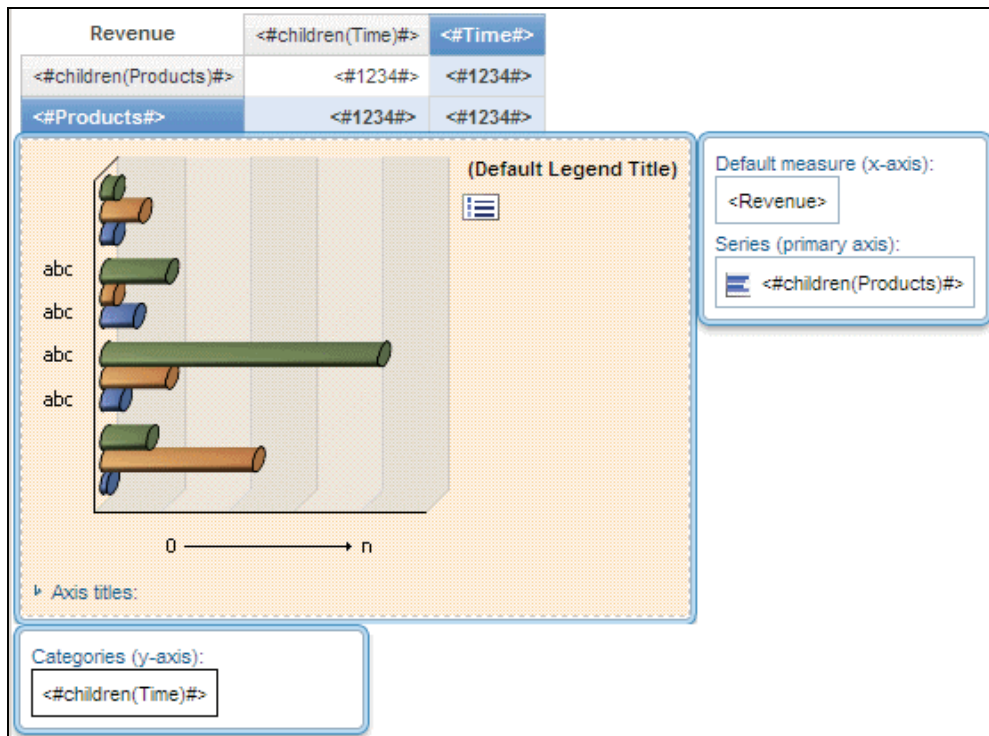
The crosstab is now filled with placeholders, instead of the live data. You can see the set of members of Time and Products, in the columns and rows respectively, and the Revenue measure placeholders. When working in Page Design mode, to see the data values you will run the report.

13. Click a cell in the crosstab, on the **Insertable Objects** pane > **Toolbox** tab, drag a **Chart** object below the crosstab.



14. In the left pane click **Bar**, in the right pane click **Clustered Cylinder Bar with 3-D Effects** , select **Fill with data**, and then click **OK**.

The bar chart is displayed below the crosstab. The chart is automatically populated with the data items (as placeholders) from the crosstab.



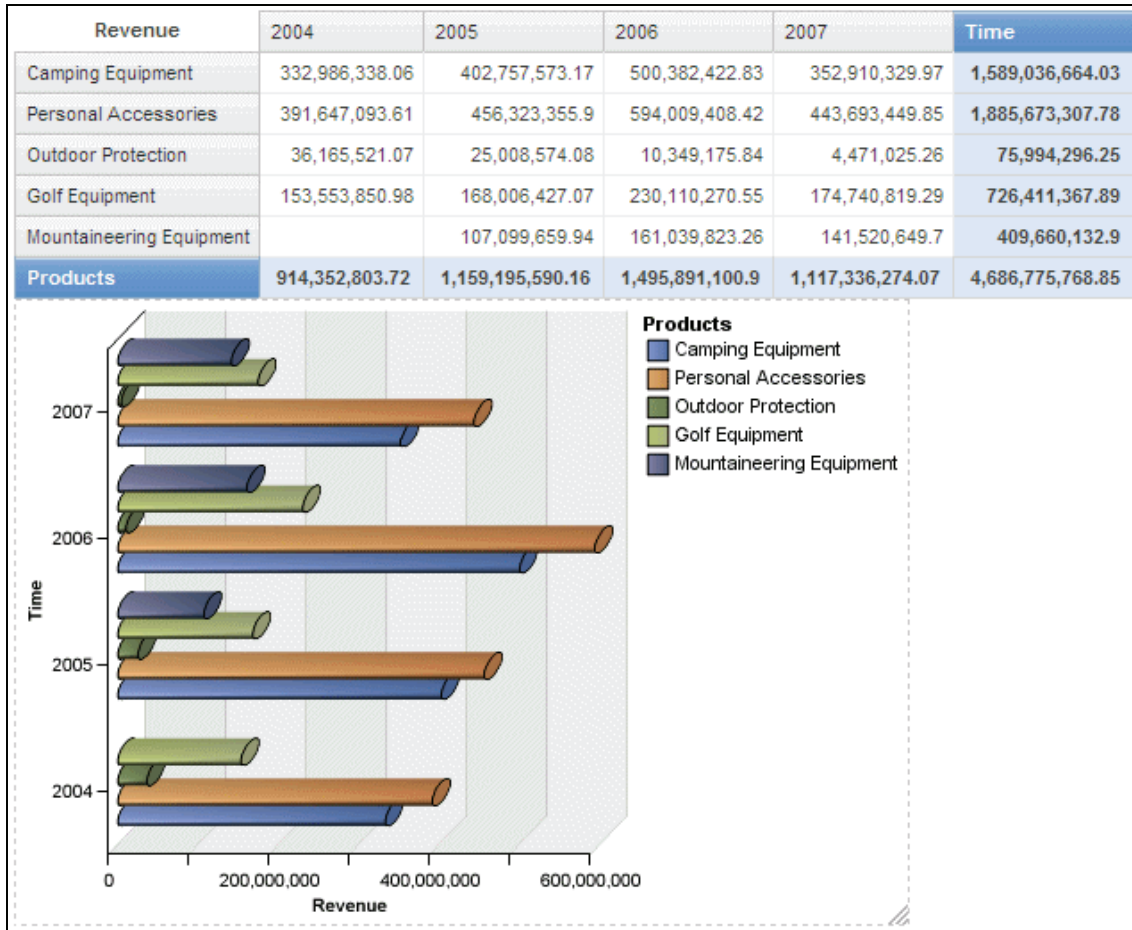


15. From the **View** menu, click **Page Preview**.

The crosstab and chart display actual data values.

16. Click the title text to change the focus from the chart.

The results appear as follows:



17. In the lower right corner of the chart, drag the resize corner to enlarge the chart to be the same width as the crosstab.

Charts can easily be resized using this method.

Now that you have reviewed the revenue for the product lines over the years, you want to change the measure to display quantity.

18. On the **Insertable Objects** pane > **Source** tab, under **Sales fact**, click **Quantity**, and drag it to the measures area on the crosstab.

The crosstab displays the new measure.

19. Right-click the chart, and then click **Update Chart from Crosstab**.

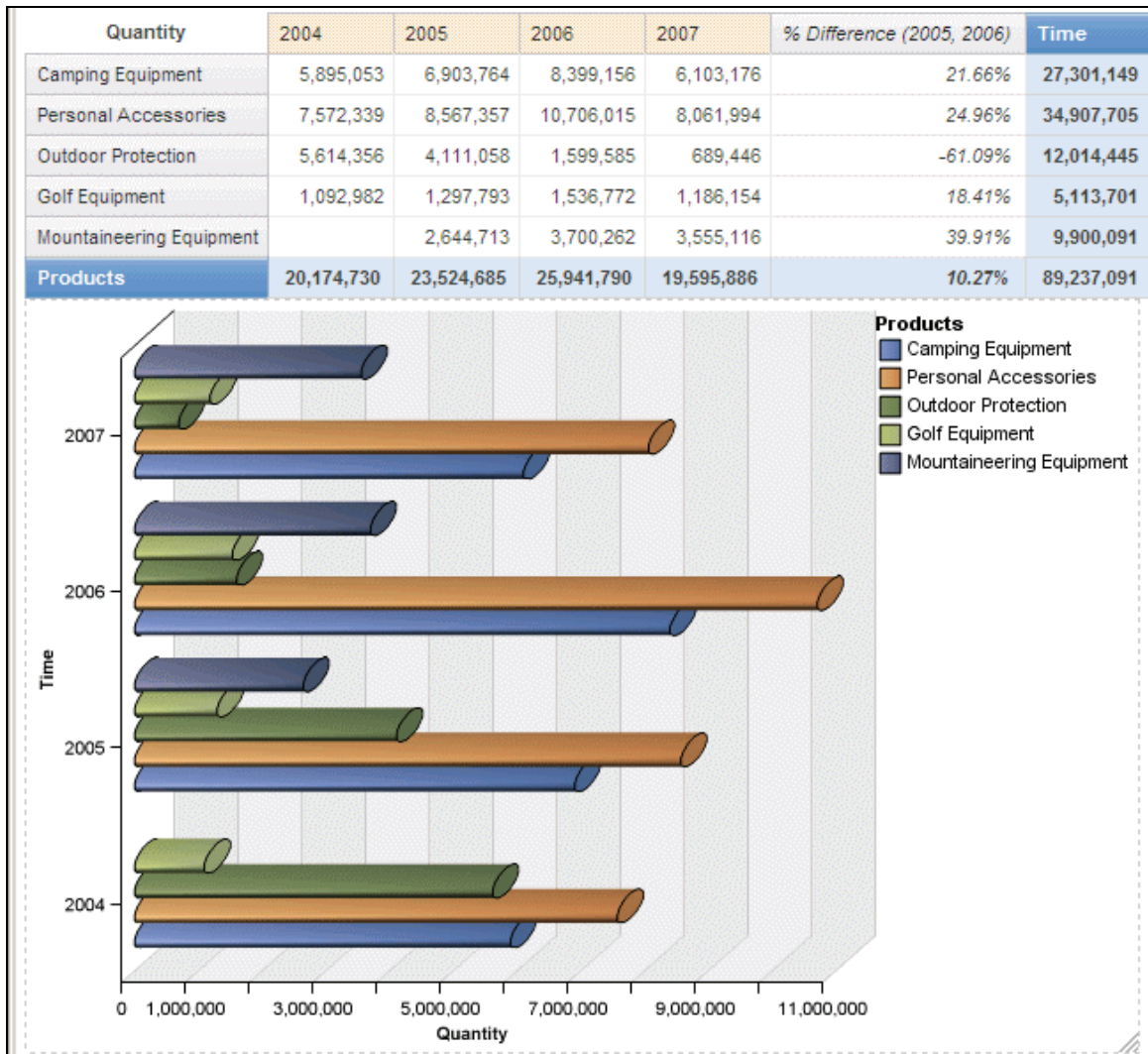
The chart updates to display the quantity values based on the crosstab.

You want to analyze the previous year-to-year percent difference of quantity for 2005 and 2006. To do this, you will create a variance calculation, using a preset calculation in Business Insight Advanced.

20. In the crosstab, click the **2005** column header and then Shift-click the **2006** column header.

21. Right-click **2006**, click **Calculate**, and then click **% Difference (2005, 2006)**.


A new column displays the calculated values for you to review.



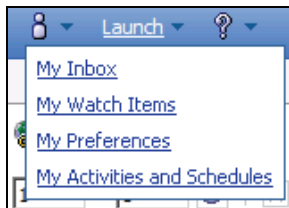
22. In **Business Insight Advanced**, from the **Report Actions** menu, click **Exit**, and do not save changes.

You are returned to **IBM Cognos Connection**.

## Task 9. Explore preferences.

1. On the **IBM Cognos Connection** toolbar, click **My Area Options** .

The result appears as follows:



Here you can view and manage:

- Inbox (notification requests and ad hoc tasks)
- watch items (user-specified rules to receive alerts based on values in a report)
- personal preferences
- activities and schedules (such as reports you are running or have run in the past, as well as reports you have scheduled to run)

## 2. Click **My Preferences**.

A section of the results appear as follows:

**Set preferences**

**General** | [Personal](#) | [Portal Tabs](#)

Specify your settings.

**Number of entries in list view:**  
15

**Separators in list view:**  
No separator

**Style:**  
Corporate [Preview](#)

☐ Show hidden entries

**Report format:**  
HTML

☒ Show the Welcome page at startup

☒ Show a summary of the run options

☐ Enable accessibility support for reports I run or schedule

**Portal**

**Default view:**  
☒ List  
☐ Details

**Number of columns in details view:**  
3 columns

**Regional options**

**Product language:**  
☒ Use the default language  
☐ Use the following language:  
English

**Content language:**  
☒ Use the default language  
☐ Use the following language:  
English

**Time zone:**  
☒ Use the default time zone  
☐ Use the following time zone:  
(GMT-05:00) Eastern Time: Ottawa, New York, Toronto, Montreal, Jamaica, Porto Acre

On this tab you can configure your personal portal preferences. For example, you can change the UI language and, if your data and metadata support it, you can change your content language as well.

3. Click the **Personal** tab.

A section of the result appears as follows:

**Set preferences** [Help](#) ✕

[General](#) **Personal** [Portal Tabs](#)

View the summary of your authentication information and manage your credentials. You can also view the groups and roles whose access permissions you have in this session and the capabilities available to you.

**Primary logon**

The primary logon represents the namespace that you first logged on to in this session and the credentials that you used.

**Namespace:**  
LDAP

**User ID:**  
admin

**Given name:**  
Admin

**Surname:**  
Person

**Email:**  
admin@grtd123.com

**Alerts**

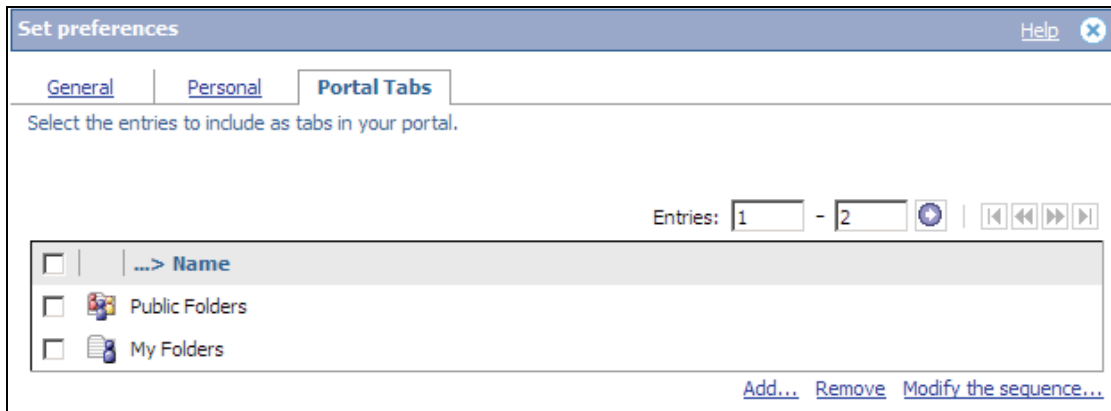
Specify the email address to use for your alerts about new versions.

**Email:**

On this tab you can see your personal information as well as which groups and roles you belong to and which capabilities you have in the IBM Cognos environment (not all elements are shown in the screen capture). Depending on your authentication provider and capabilities, information on this page will differ.

- Click the **Portal Tabs** tab.

The result appears as follows:



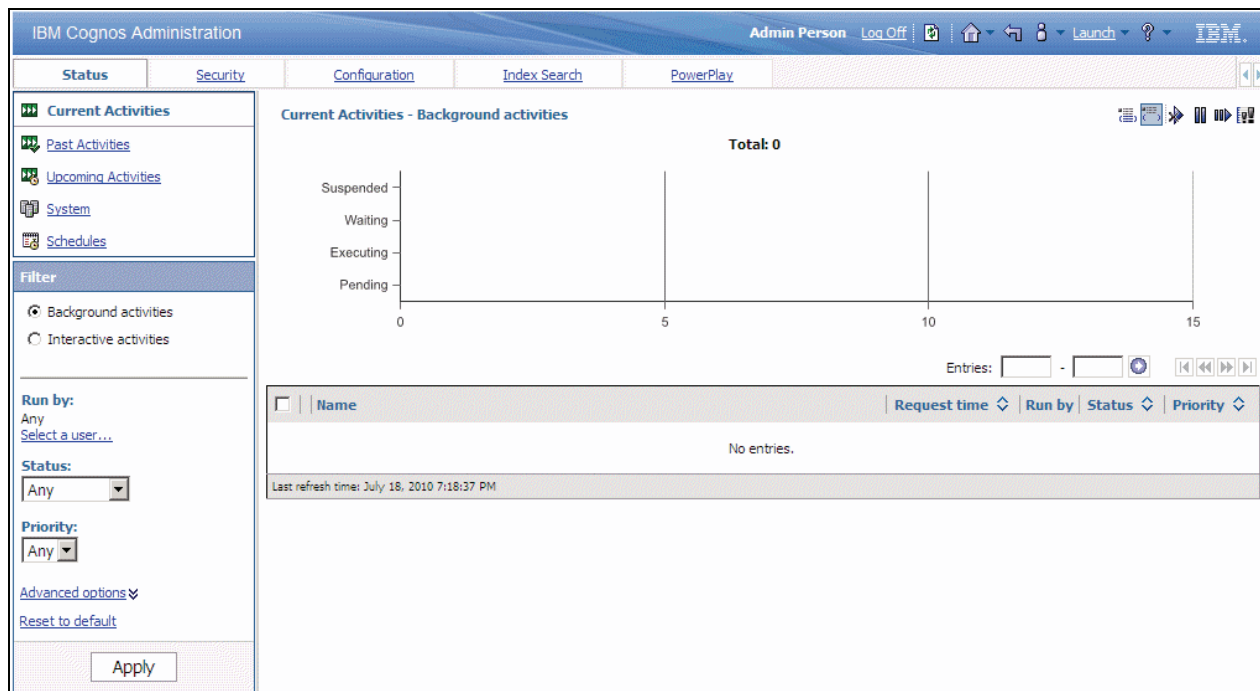
Here you can manage your portal tabs such as adding removing tabs or changing the order of the tabs.

- Click **Cancel**.

## Task 10. Explore IBM Cognos Administration.

1. From the **Launch** menu, click **IBM Cognos Administration**.

The result appears as follows:



This portion of the portal requires administrative access and allows you to monitor and administer IBM Cognos including servers, security, capabilities, data source connections, and the deployment of content.

2. Click **Log Off**, and then close **Internet Explorer**.

### Results:

**As an introduction to IBM Cognos BI, you briefly explored one of the modeling tools, IBM Cognos Connection, and various BI studios to familiarize yourself with the environment and BI workflow.**



## Extend IBM Cognos BI

- IBM Cognos provides a wide variety of ways to extend IBM Cognos BI.
- For more information, please visit the [IBM Cognos Web site](http://www-01.ibm.com/software/data/cognos/)  
<http://www-01.ibm.com/software/data/cognos/>.

---

Cognos products that extend IBM Cognos BI include:

- IBM Cognos for Microsoft Office (integrate IBM Cognos content with MS Office)
- IBM Cognos Mobile (IBM Cognos content on mobile devices)
- IBM Cognos Analysis for Microsoft Excel (multidimensional analysis on IBM Cognos BI data in MS Excel spreadsheets)
- IBM Cognos Mashup Service

For developers, there is also Composite, which allows for access to an even wider variety of data sources, and the IBM Cognos SDK for customization and application development.

For those requiring access to realtime monitoring of operational data, IBM Cognos offers IBM Cognos BI Real-time Monitoring, which delivers highly visual, interactive, and self-service dashboards, data integration, analysis, and reports, all prepackaged in a hardware appliance.

You can incorporate TM1 portlets into IBM Cognos to allow users to interact with financial plans.

## Summary

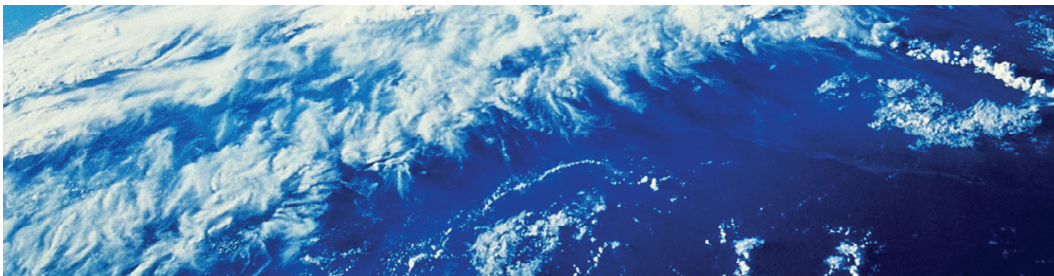
- At the end of this module, you should be able to:
  - describe IBM Cognos Business Intelligence (BI) and Financial Performance Management (FPM)
  - describe IBM Cognos BI components
  - describe IBM Cognos architecture at a high level
  - define IBM Cognos groups and roles
  - explain how to extend IBM Cognos BI



---

# **Introduction to the Reporting Application**

IBM Cognos BI



**Business Analytics**

© 2010 IBM Corporation



## Objectives

- At the end of this course, you should be able to:
  - examine Report Studio and its interface
  - explore different report types
  - create a simple, sorted, and formatted report
  - explore how data items are added queries

If you intend to teach this module, students should be familiar with:

- IBM Cognos BI Overview

Suggested modules to reference:

- Overview of IBM Cognos BI
- IBM Cognos BI: IBM Cognos Connection for Consumers (v10.1) WBT

**INTERACTION - Star Sticker:** Use the star sticker to highlight each objective as it is introduced.

# What is Report Studio?

- Report Studio:
  - is a Web-based report authoring tool
  - lets you create business intelligence (BI) reports that analyze corporate data according to specific information needs
  - lets you format, present, and distribute your corporate data using many different methods

You can choose to go through these slides first, as a sneak preview to what participants will see in RS. Or you can speak to each slide's content as you walk through the demo, and then run through these slides after, as a review.

**INTERACTION - Whiteboard:** Using the whiteboard and pointer, ask users to explain what they think Report Studio is?

Business Analytics IBM

## Explore the Environment

- Use the toolbars, panes, and work area to create and enhance reports.

The screenshot shows the IBM Business Analytics reporting application interface. The main window is titled 'Progress Report' and displays a table with columns: Country, City, Employee name, Quantity, and Revenue. The interface includes several panes and toolbars:

- Toolbar:** Located at the top of the application window, containing various icons for file operations, editing, and report generation.
- Insertable Objects Pane:** Located on the left side, displaying a tree view of available objects such as 'Returned items (query)', 'Sales (query)', 'Quantity', 'Unit cost', 'Unit price', 'Unit sale price', 'Gross margin', 'Revenue', 'Gross profit', 'Product cost', 'Planned revenue', 'Employee by manager', 'Employee by', 'Order method', 'Organization', 'Position-department', 'Products', and 'Promotions'.
- Properties Pane:** Located at the bottom left, displaying properties for the selected object, including 'Conditional', 'Conditional Styles', 'Style Variable', 'Text Source Variable', and 'Text Source'.
- Work Area:** The central area where the report is built, displaying the 'Progress Report' table.
- Explorer Bar:** Located on the right side, displaying a list of objects and their properties.
- Source, Data Items, and Toolbox tabs:** Located at the bottom of the main window, allowing users to switch between different views of the report.

© 2010 IBM Corporation

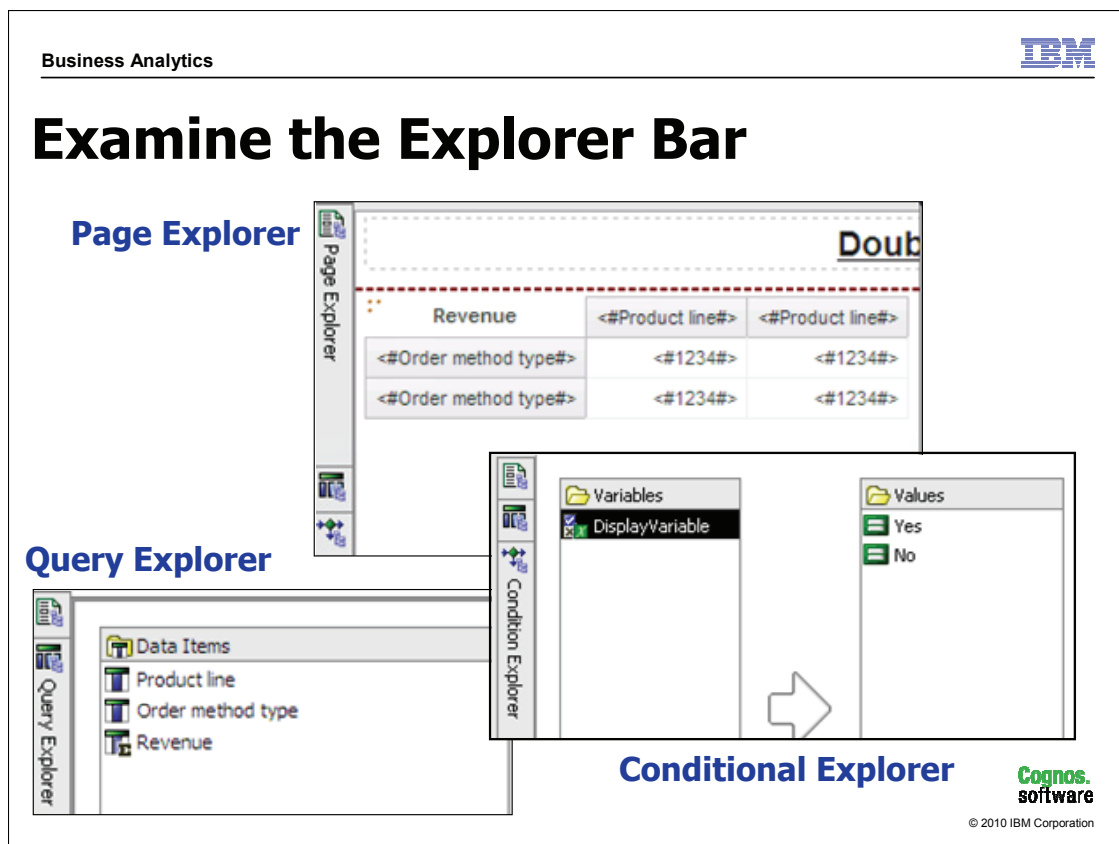
Build reports by adding objects and data items from the Insertable Objects pane. The Source tab allows you to insert query items into your report directly from the package. You can only make changes to the structure of the package by using Framework Manager. The Data Items tab allows you to insert data items into your report that already exist in your query. The Toolbox tab allows you to insert report objects into your report.

Modify objects and query items using the Properties pane.

Resize panes by dragging the pane edges.

Navigate between pages, queries and variables using the Explorer bar.

**INTERACTION** –The next five slides, including this one, have content that is best explored in a demo



Page Explorer - used to create and modify report pages, prompt pages, and classes (local and global).

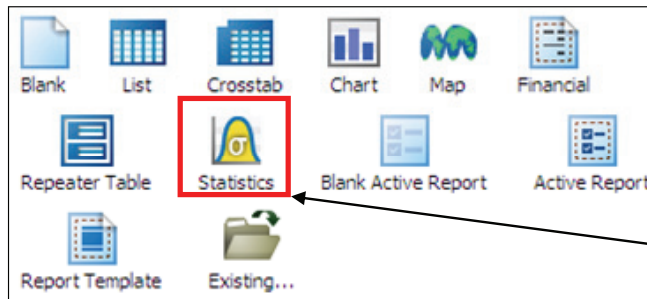
Query Explorer - used to create and modify queries and perform complex tasks such as defining union joins and writing SQL statements to be used in a report.

Conditional Explorer - used to create and modify variables to define conditions that will be used to format the report.



## Explore Report Templates

- Report Studio contains several report templates to structure your reports.
- Different report templates can be combined on the same page.



**The Statistics report Type only appears when the Statistical Analysis package is installed.**

**Cognos.**  
software

© 2010 IBM Corporation

If you create a new report using a report template, such as list or crosstab, the report will contain a header and footer with the specified report type in the body of the report.


---

Repeater tables are used to format data in a repeated fashion across a table format.

In Report Studio you can create a Query Studio template to provide users with a layout to apply to their existing Query Studio reports or create new reports.

To open a copy of an existing report without affecting the original report, choose Existing.

- List reports are useful for presenting tabular list information.
- Crosstab reports are useful for comparative analysis.
- Chart reports are useful for graphically showing comparisons, relationships, and trends.
- Map reports are useful for presenting data across geographical and other spatial contexts.

Business Analytics


## Generate the Report

- To view the results of the designed report, run the report and view it in IBM Cognos Viewer.

**Work area Report**


Country	Revenue
<Country>	<Revenue>

→

**Run Report**

**Results in IBM Cognos Viewer**

Country	Revenue
Portugal	\$34,675,662.43

  
© 2010 IBM Corporation

While working in Report Studio, you will only see metadata, such as column or row labels. You will not see actual data values in the report. To see report results, you must run the report. The results appear in a separate window in IBM Cognos Viewer.

---

You can navigate through the report using the Page Up, Page Down, Top, and Bottom links at the bottom of the report.

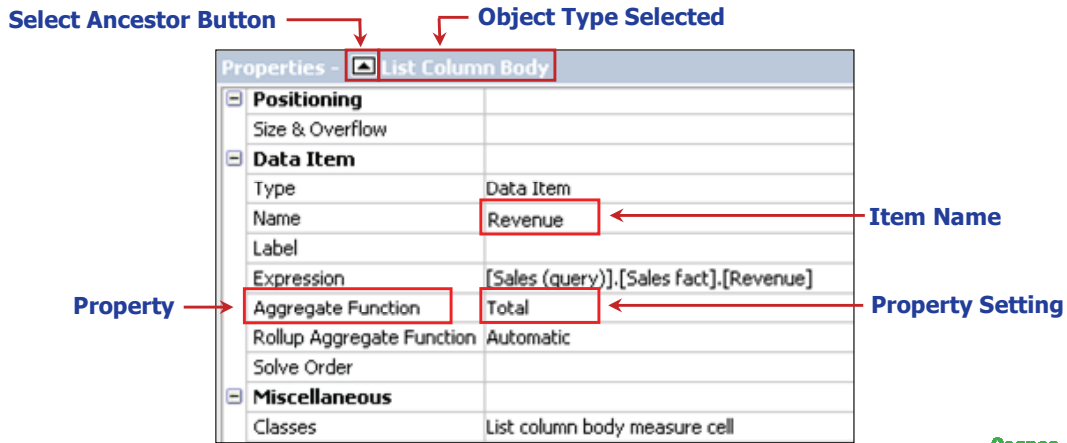
You can return to Report Studio to alter your report by clicking the Close link in the upper right corner.

You can distribute reports by email or through the Web, or you can save them on your desktop. You would first render the report in the format that is most suitable for your needs: HTML, PDF, Excel 2000 Single Sheet, Excel 2002, Excel 2007, CSV, and XML formats.

Excel 2000 no longer supported.

## Change the Properties of an Object

- The Properties pane lets you view and change the properties of an item or object in your work area.



When you click an item or object in the report, the properties for that item appear in the Properties pane.

You can verify the object type selected by the name displayed at the top of the Properties pane. It is a best practice to verify the object type selected before making any modifications to it.

You can select an ancestor (or parent container) of the object previously selected in your work area by clicking the Select Ancestor button.

In the slide example, the Properties pane shows the properties and settings for Revenue, which is currently a column in a list. The data displayed will be aggregated by total.

There are different ways to change a property setting. If there are only two options for a certain property, double-click the setting to toggle to the other option. If there are multiple options, you can click the setting and then click the ellipsis and choose the desired setting from the dialog box that appears, or choose a selection from a drop-down list.

## Demo 1: Create a Simple Report

### Purpose:

You want to make a report that lists all of the sales representatives ranked by the amount of revenue they have generated to date. The revenue must be displayed in American dollars and include the name, position, city, and country of each representative.

### Task 1. Open Report Studio and choose a report type.

1. Start your browser, in the address box, type **http://<servername>:88/ibmcognos**, and then press **Enter**.
2. On the **Log on** screen, in the **User ID** box, type **brettonf**, in the **Password** box, type **Education1!**, and then click **OK**.
3. On the **IBM Cognos software** page, click **Author advanced reports**, and then on the **Select a package** page, click **Samples/Models/GO Data Warehouse (query)**.
4. Click **Create new**, click **List**, and then click **OK**.

The outline of a list report appears in the work area. A header appears at the top, and a footer containing date, time, and page number information appears at the bottom.

## Task 2. Add items to the list.

1. In the **Insertable Objects** pane, ensure the **Source** tab is selected.  
A data tree appears that contains all of the available items that can be added to the report.
2. Expand the **Sales and Marketing (query)** folder, expand the **Sales (query)** namespace, and then expand the **Employee by region** query subject.
3. Double-click **Country** to add it to the report.  
The list report now contains one column.
4. Double-click **City** to add it to the report.  
City is automatically added to the end of the list.
5. Right-click **Last name** and then click **Properties**.  
The Properties dialog box appears with details about the item.
6. Click **Close**.
7. Ctrl-click **First name**, **Last name**, **Employee level** and **Position name**, right-click **Position name**, and then click **Insert**.  
The items are added to the report in the order in which they are selected.
8. Expand the **Sales fact** query subject, and double-click **Revenue** to add it to the report.  
You would like to see the Last name before the First name.
9. In the work area, click a cell in the **Last name** column, and then drag it to the left of the **First name** column. A flashing black bar appears when in the correct drop zone.  
Now that you have built the report you can view the data items in the query.

### Task 3. View the data items in the query.

1. On the **Explorer** bar, point to **Query Explorer** , and then click **Query1**.

The data items you added to the list appear in the Data Items pane for the query. The names of the data items correspond to the column titles in the report layout.

2. In the **Data Items** pane, click **Position name**.

You want to view information about the data the Position name data item retrieves from the data source.

3. In the **Properties** pane, double-click the **Expression** cell.

In the Data Item Expression dialog box, you can see that this data item retrieves data from the Position name query item in the Employee by region query subject in the Sales (query) namespace.

4. Click **OK**, and then in the **Data Items** box, click **Last name**.

5. In the **Properties** pane, double-click the **Expression** property.

The Data Item Expression dialog box appears. You can see that this data item retrieves data from the Last name query item in the Employee by region query subject in the Sales (query) namespace.

6. Click **OK** to close the dialog box.

7. On the **Explorer** bar, point to **Page Explorer** , and click **Page1** to return to the work area.

---

Emphasize to the students that you select a column by clicking any one of the cells in the column, not the column title. To check to see what element of the report you have selected, check the title bar of the Properties pane.

## Task 4. Remove a column from the report.



You decide that you do not want to include Employee level in the list report. You will remove it from the list.

1. In the list report, click **Employee level** column and then on the toolbar, click **Cut** .

The column is removed from the list report.

2. Point to **Query Explorer**, and then click **Query1**.

The Employee level data item still appears in the Data Items pane. Although you removed the Employee level data item from the report layout in Page Explorer, the data item has not been removed from the query. However, keeping the data item in the query can be useful for other purposes such as creating a calculation.

3. Point to **Page Explorer**, and then click **Page1** to return to the work area.
4. On the toolbar, click **Undo** , in the report, click **Employee level**, and then on the toolbar, click **Delete** .
5. Point to **Query Explorer**, and then click **Query1**.

The Employee level data item has been removed from the report layout and the query and no longer appears in the Data Items pane.

---


Task 4, Step 2. Other examples of where you would keep a data item in the Query, but remove it from the report layout are: so that you could later add it back to the list report, or, you could use this item when sorting or formatting data in the list.

## Task 5. Format and sort the data, and run the report

1. Point to **Page Explorer**, and then click **Page1**.
2. In the work area, click the **Revenue** column (not the column title).

The Revenue cells are highlighted to show that they are selected. The Properties pane shows the properties for this column.

3. On the toolbar, click **Sort** , and then click **Descending**.

An icon  appears beside the Revenue column title indicating that the data is sorted in descending order. Our sales reps will now be ranked starting with our top performers.

4. With the **Revenue** column still selected, in the **Properties** pane, click **Data Format**, and then click the **ellipsis** .

The Data Format dialog box appears.

5. In the **Format type** list, click **Currency**.
6. Under **Properties**, click **Currency**, and then in the list, click **\$ (USD) - United States of America, dollar**.

Revenue will now be displayed in American dollars. By default, it will use a comma as a thousands separator, and two decimal places.

7. Click **OK**.

---

Task 5, Step 5. Changing the currency will not perform a currency conversion (for example, it will not convert one currency into the value of another). It will simply show the value with a different currency symbol, thousands separator, decimal place, and so on. If you want to see data displayed in a particular currency, the data must be stored in the data source in that currency.



8. On the toolbar, click **Run Report** .

A section of the results appear as follows:

Country	City	Last name	First name	Position name	Revenue
Switzerland	Genève	Bruno	Fausta	Level 3 Sales Representative	\$79,955,838.92
Switzerland	Genève	Giordano	Fiorenza	Level 3 Sales Representative	\$72,784,594.30
Switzerland	Genève	Chambers	Warren	Level 3 Sales Representative	\$62,843,459.76
Finland	Kuopio	Lindholm	Helena	Level 3 Sales Representative	\$59,799,153.93
Korea	Seoul	Kim	Chang-ho	Level 3 Sales Representative	\$59,422,592.32
United States	Los Angeles	Laurel	Charles	Level 3 Sales Representative	\$59,406,874.73
Switzerland	Genève	Bichot	Lotta	Level 3 Sales Representative	\$54,436,904.60
Netherlands	Amsterdam	Jansen-Velasquez	Belinda	Level 3 Sales Representative	\$52,822,234.19

9. At the bottom of the screen, click **Page down** to view each page of the report.
10. Close IBM Cognos Viewer.

Leave Report Studio open for the next demo.

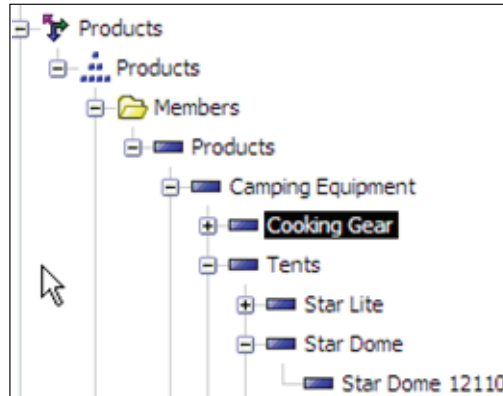
### Results:

**You created a list report and added the necessary items from the model to report on sales representative performance. You sorted the data in descending order and formatted the revenue in American dollars.**

## Dimensionally-modeled and Multi-dimensional Data sources

- In Report Studio, reports using dimensionally-modeled relational data sources and multi-dimensional data sources enable you to drill down to a detailed level

**Drill down  
to specific  
products**



**Cognos.  
software**

© 2010 IBM Corporation

Dimensionally-modeled relational metadata is data taken from a relational source and modeled as a star schema. As well, hierarchies are applied to allow for drill behavior.

Dimensionally-modeled relational data extends multi-dimensional capabilities (i.e. drill-down) to relational sources.

With multi-dimensional analysis, your corporate data is organized in the way you think about your business so that you spend more time on value added analysis, rather than on data retrieval.

Only multi-dimensional models allow drill up and drill down behavior in analyses and reports.

Discuss briefly the hierarchy structure and icons for a dimensional package with participants.

The Report Authoring course uses relational data sources to create reports. The next two demos however, provide participants with opportunities to create reports using dimensional and multi-dimensional (OLAP) data sources. If participants are interested in using Report Studio to analyze DMR or OLAP data sources, please advise them to take a look at the *IBM Cognos Report Studio: Author Reports with Multidimensional Data (version 10.1)* course.


**INTERACTION - Survey:** This slide and the following two demos (Demos 3 and 4) could be treated as self-study material, as time permits, or according to the interest of the audience. You should poll the participants to determine their interest.

## Demo 2: Create a Report from a Dimensionally-Modeled Relational Data Source

### Purpose:

You want to explore a dimensionally-modeled relational data source and create a report that enables you to drill down to a lower level of detail.

### Task 1. Explore a dimensionally-modeled relational data source in Report Studio.

1. From the toolbar, click **New**, without saving the previous report.
2. From the **Package** box, click the ellipsis , navigate to **Samples/Models/GO Data Warehouse (analysis)**, click **OK**, click **List**, and then click **OK**.

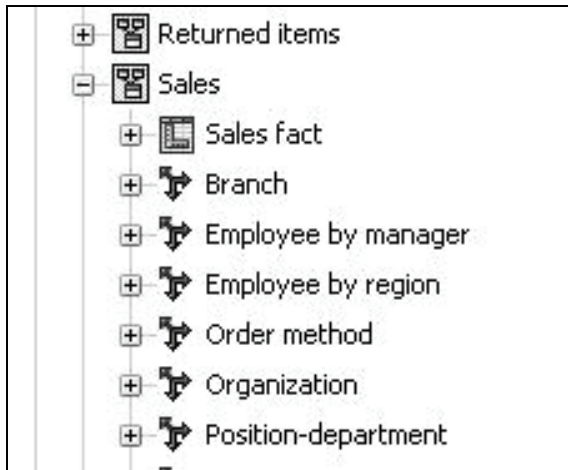
The data tree on the left displays the folders available in the package. Notice the folder icon .



3. Expand the **Sales and Marketing (analysis)** folder.

You see the namespaces in the Sales and Marketing (analysis) folder. Notice the namespace icon .

4. Expand the **Sales** namespace.


A section of the results appear as follows:



The available measures and dimensions display in the data tree. Notice the measures query subject icon  and the dimensions icon .

5. Expand the **Sales fact** measures query subject.

You see all the measures available in the Sales fact measures query. Notice the measures icon .

6. Expand the **Retailers** dimension, and then expand the **Retailers** hierarchy .

You see a Members folder and five levels. Notice the level icon .

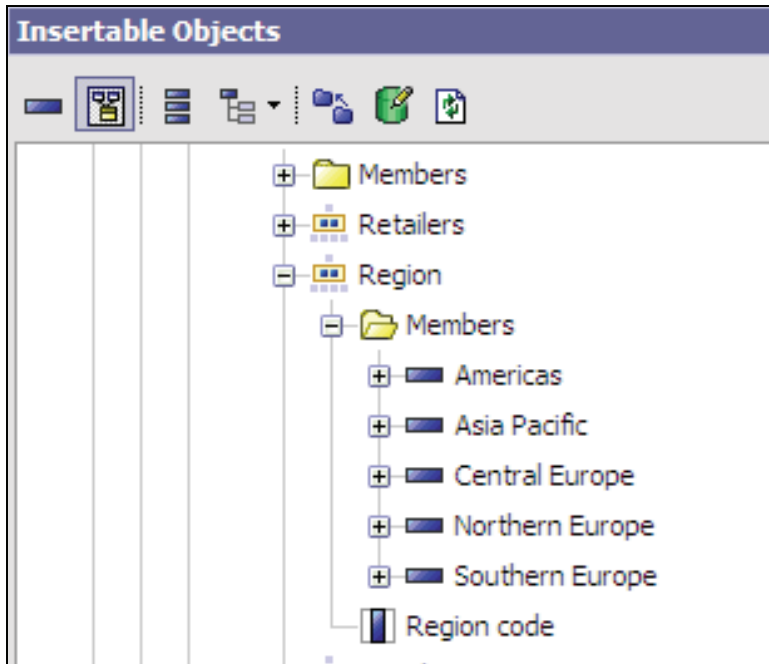
7. Expand the **Region** level.

The Members folder and the Region code query item display in the data tree.

Notice the query item icon .

8. Expand the **Members** folder to see the five sales regions.

The results appear as follows:



## Task 2. Add items to the List Report.

You need to create a report that shows the quantity of Star Dome tents sold in Canada in 2007. Because this is dimensionally-modeled relational data, you can drill down to a greater level of detail than in a relational model.

1. Expand the **Time** dimension, expand the **Time** hierarchy, expand the **Year** level, expand **Members**, and drag **2007** to the report.

Notice how you can add specific members to a report, instead of having all years added and filtering for only the years you want (as in relational data sources).

2. In the **Retailers** dimension, in the **Retailers** hierarchy, in the **Region** level, in the **Members** folder, expand the **Americas** member, and drag the **Canada** member to the report.

- Expand the **Products** dimension, expand the **Products** hierarchy, expand the **Product line** level, expand **Members**, expand the **Camping Equipment** member, expand the **Tents** member, and drag the **Star Dome** member to the report.
- Expand **Sales fact** measures, and drag the **Quantity** measure to the report.

The results appear as follows:

2007	Canada	Star Dome	Quantity
<2007>	<Canada>	<Star Dome>	<Quantity>
<2007>	<Canada>	<Star Dome>	<Quantity>
<2007>	<Canada>	<Star Dome>	<Quantity>

### Task 3. Allow drill-up and drill-down on the report.

- From the **Data** menu, click **Drill Behavior**, select **Allow drill-up and drill-down**, and then click **OK**.
- On the toolbar, click **Run Report**.

You can see that 2,429 Star Dome tents were sold in Canada in 2007.

- Drill-down on **2007**.
- The results appear as follows:

2007	Canada	Star Dome	Quantity
<u>Q1 2007</u>	<u>Canada</u>	<u>Star Dome</u>	968
<u>Q2 2007</u>	<u>Canada</u>	<u>Star Dome</u>	1,107
<u>Q3 2007</u>	<u>Canada</u>	<u>Star Dome</u>	354

- Notice that you can drill-down on any underlined data.
- Close **IBM Cognos Viewer**.

Leave Report Studio open for the next demo.

#### Results:

**You explored a dimensionally-modeled relational data source in Report Studio. You created a report that demonstrated how you can drill down to a detailed level in the data source.**

## Demo 3: Create a Report from a Multi-Dimensional Data Source

### Purpose:

You want to explore a multi-dimensional data source in Report Studio and create a report that demonstrates how you can drill down to a detailed level.

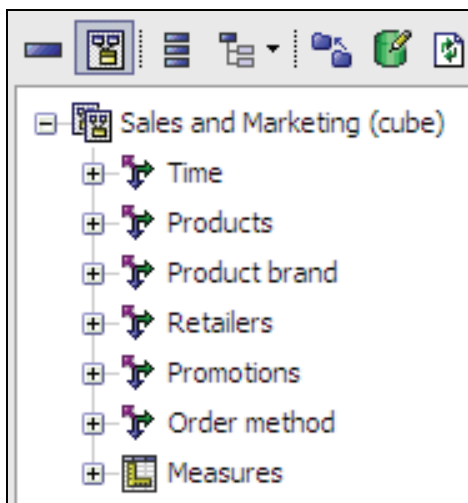
### Task 1. Explore a multi-dimensional data source in Report Studio.

You want to create a report that compares the quantity sold and the returns for the Infinity watch by region in 2006.

1. From the toolbar, click **New**, without saving the previous report.
2. Change the package to **Samples\Cubes\Sales and Marketing (cube)** package, and then click **OK**.
3. Click **List**, and then click **OK**.

The data tree on the left displays the dimensions and measures folder available in the cube.

The results appear as follows:



4. Expand the **Time** dimension, expand the **Time** hierarchy, expand the **Year**, level, expand **Members**, and drag the **2006** member to the report.
5. Expand the **Products** dimension, expand the **Products** hierarchy, expand the **Product line** level, expand **Members**, expand the **Personal Accessories** member, expand the **Watches** member, and drag the **Infinity** member to the report.
6. Expand the **Retailers** dimension, expand the **Retailers** hierarchy, and drag the **Region** level to the report.
7. Expand **Measures**, and then drag the **Revenue** measure and the **Quantity** measure to the report.

## Task 2. Allow drill-up and drill-down on the report.

1. From the **Data** menu, click **Drill Behavior**, select **Allow drill-up and drill-down**, and then click **OK**.
2. On the toolbar, click **Run Report**.
3. Drill-down on **Americas**.

The results appear as follows:

2006	Infinity	Americas	Revenue	Quantity
<a href="#">2006</a>	<a href="#">Infinity</a>	<a href="#">United States</a>	7,765,974.40	32860
<a href="#">2006</a>	<a href="#">Infinity</a>	<a href="#">Canada</a>	2,741,285.40	11626
<a href="#">2006</a>	<a href="#">Infinity</a>	<a href="#">Mexico</a>	678,093.20	2881
<a href="#">2006</a>	<a href="#">Infinity</a>	<a href="#">Brazil</a>	1,151,905.80	4925

4. Close **IBM Cognos Viewer**.

Leave Report Studio open for the workshop.

### Results:

**You explored a multi-dimensional data source in Report Studio. You created a report that demonstrated how you can drill down to a detailed level in the data source.**



## Summary

- At the end of this course, you should be able to:
  - examine Report Studio and its interface
  - explore different report types
  - create a simple, sorted, and formatted report
  - explore how data items are added to queries

**INTERACTION - Check sticker:** Check each objective as it is summarized

## Workshop 1: Create a Returned Items Report

You need to make a report showing all returns for each product type within each product line. The report must list these returns from the largest quantity to the smallest.

To accomplish this:

- Create a list report in the GO Data Warehouse (query) package.
- Add the following items in order:
  - Product line
  - Product type
  - Product
  - Return quantity
- Sort Return quantity in descending order.

For more detailed information outlined as tasks, see the Task Table section.

For the final query results, see the Workshop Results section that follows the Task Table section.

## Workshop 1: Task Table

<b>Task 1: Create a List Report.</b>	
<b>Where to Work</b>	<b>Hints</b>
List report	<ul style="list-style-type: none"> <li>• GO Data Warehouse (query).</li> </ul>
<b>Task 2: Add Items to the List.</b>	
<b>Where to Work</b>	<b>Hints</b>
Insertable Objects pane \ Source tab, Sales and Marketing (query), Sales (query)	<ul style="list-style-type: none"> <li>• Product\Product Line, Product type, Product.</li> </ul>
Source tab, Returned items (query)  Work area	<ul style="list-style-type: none"> <li>• Returned items fact\Return quantity</li> </ul>
<b>Task 3: Sort the Data.</b>	
<b>Where to Work</b>	<b>Hints</b>
Toolbar	<ul style="list-style-type: none"> <li>• Sort Return quantity in descending order</li> </ul>
<b>Task 4: Run the report.</b>	
<b>Where to Work</b>	<b>Hints</b>
Toolbar	<ul style="list-style-type: none"> <li>• Run Report.</li> </ul>

If you need more information to complete a task, see the Step-by-Step instructions at the end of the Workshop.

## Workshop 1: Workshop Results

After Task 4, Step 1, a section of the results appears as follows:

Product line	Product type	Product	Return quantity
Outdoor Protection	Insect Repellents	BugShield Lotion	81,189
Outdoor Protection	Insect Repellents	BugShield Extreme	72,255
Outdoor Protection	Sunscreen	Sun Shelter 30	43,758
Personal Accessories	Knives	Single Edge	41,505
Camping Equipment	Cooking Gear	TrailChef Water Bag	39,569
Personal Accessories	Eyewear	Zone	39,451
Mountaineering Equipment	Climbing Accessories	Granite Carabiner	33,811
Outdoor Protection	Sunscreen	Sun Shield	32,382
Camping Equipment	Lanterns	EverGlow Lamp	29,434
Camping Equipment	Tents	Star Peg	27,217
Camping Equipment	Cooking Gear	TrailChef Kettle	26,794
Outdoor Protection	Sunscreen	Sun Shelter 15	25,124

## Workshop 1: Step-by-Step Instructions

### Task 1. Create a list report.

1. On the toolbar, click **New**, and then click **No** when prompted to save the report.
2. Under **Package**, click the ellipsis, click the **GO Data Warehouse (query)** package, and then click **OK**.
3. Click **List**, and then click **OK**.

### Task 2. Add items to the list.

1. In the **Insertable Objects** pane, ensure the **Source** tab is selected, expand the **Sales and marketing (query)**, expand **Sales (query)**, and then expand **Products**.
2. Shift-click **Product line** and **Product**, and then drag the three selected query items to the report.
3. Expand **Returned items (query)**, expand **Returned items fact**, and then drag **Return quantity** to the list.

### Task 3. Sort the data.

1. In the work area, click the **Return quantity** column (not the column title).
2. On the toolbar, click **Sort**, and then click **Descending**.

### Task 4. Run the report.

1. On the toolbar, click **Run Report**.  
All returns for each product type within each product line display in the report and are listed from the largest quantity to the smallest.
2. Close **IBM Cognos Viewer**, close **Report Studio** without saving changes, and then close **Internet Explorer**.





# Create List Reports

IBM Cognos BI



**Business Analytics**

*Confidential*

© 2010 IBM Corporation





## Objectives

- At the end of this course, you should be able to:
  - group, format, and sort list reports
  - describe options for aggregating data
  - create a multi-fact query
  - create a report with repeated data

---

If you intend to teach this module in custom courses, students should be familiar with:

- Report Studio Basics

Suggested module to reference:

- Introduction to the Reporting Application

**INTERACTION - Star Sticker:** Use the star sticker to highlight each objective as it is introduced.

## Examine List Reports

- You can use list report to:
  - present tabular information
  - show detailed information from your database

Country	Employee name	Revenue
Switzerland	Adriaantje Haanraads	\$27,600,413.97
Spain	Agatha Reyes	\$24,097,530.30
Japan	Aimi Tanaka	\$16,468,860.28

## Group Data

- Group your data and choose how often to display item names by changing the group span properties.

### Group on Country and City

Canada	Calgary	Tammy Sherwood
		Vittorio Rizzo
	Toronto	Brendon Pike

### Group on Country and City with Group Span by City

Canada	Calgary	Tammy Sherwood
		Vittorio Rizzo
Canada	Toronto	Brendon Pike

You can group on one or more columns depending on how you want to see your data.

The list report should preferably follow a 1:n cardinality from left to right in order to properly display the grouping.

Spanning one group of items by a second group can be helpful if the second group contains many items.

You can level span grouped items only by other grouped items on the report.

To group related information together, select a column and click Group/Ungroup on the toolbar. For example, when country and city are both grouped, you can choose to show the country name each time the country changes (span Country by Country), each time the city changes (span Country by City), or every time there is a new record (no level spanning).

A grouped item will appear at the top of a new page regardless of level spanning. For example, when Country is spanned by City, the Country name will appear at the top of the next page, even for records in the same City.

Grouping a column in a list generates an "order by" clause in the generated SQL, so your data is returned grouped and automatically sorted ascending.

**INTERACTION - Markup > My Arrow Tool:** Speaking to the diagram on the slide, and introducing the Group Span property, ask the audience to deduce how the list would change if Country's Group Span property is Employee name. Call on 2-3 users to give their response using My Arrow

## Format List Columns

- You can emphasize certain data to make your reports easier to read and understand.

### Before

Order number	Retailer name	Year
100003	Universo Acampando	2004
100009	Sporting Goods Direct	2004

### After

Order number	<i><b>Retailer name</b></i>	Year
100003	<i>Universo Acampando</i>	2004
100009	<i>Sporting Goods Direct</i>	2004

You can format list report columns at different levels depending on your requirements:

- lowest level: format the cells on a list column.
- higher level: format both cells and the title in a list column.
- highest level: format both the cells and titles in all columns in the list.

In the slide example, if you wanted to sort the Product line column by Gross profit instead of by Product line, you would delete the Product line sort item from under the Product line Sort List folder, and would then drag the Gross profit query item to the Product line Sort List folder. Items in a report that are grouped appear under the Groups folder.

- You can modify the item used to sort a grouped item, add or remove a sort item, and determine the sort order. Click an object that can be sorted, on the toolbar, click Sort, and then click Advanced Sorting.
- Select the List object, and then in the Properties pane, double-click the Grouping & Sorting property.

The item used to sort specific grouped items in a report or to sort ungrouped items in a report does not need to be on the report page but does need to be in the query.

## Include List Headers and Footers

- You can add headers and footers to a list report to provide additional information about the contents of the report.

**List Page Header** →

**Overall Header** →

Country	City	Employee name	Revenue
<i>Sales Rep Performance by Country and City</i>			
As requested by Tom Johnson			
Austria	Wien	Jutta Shulz	26,274,108.98
		Sabine Grüner	32,895,343.27

**Cognos.**  
software

© 2010 IBM Corporation

List headers and footers can be placed:

- at the top or bottom of a list on each page.
- at the top of the first page or bottom of the last page.
- before or after a group of details.

Choose where to place headers and footers based on your requirements.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Ask the class to discuss the difference between these two headers, so as to reinforce the concept.

## Demo 1: Enhance a List Report

### Purpose:

You want to create and format a report to highlight and sort the product lines based on the revenue they generated.

Server: localhost  
 User/Password: brettanf/Education1!  
 Studio: Report Studio  
 Package: Go Data Warehouse (query)  
 Report Type: List  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Add items to the list report and set Options.


1. In the **Insertable Objects** pane, on the **Source** tab, expand the **Products** query subject.
2. Ctrl-click **Product line**, **Product type**, and **Product**, and then drag them to the list.
3. Expand **Retailers**, and then drag **Retailer type** to the list.
4. Expand **Sales fact**, Ctrl-click **Quantity** and **Revenue**, and then drag them to the list.

Notice that there are no overall aggregate summaries in the list footer.

5. Click **Undo** .

---


Indicate to the participants that this will be the general format for most demonstrations. The assumption is that they know how to reach this point given the setup information.

6. From the **Tools** menu, click **Options**, and then select the **Resize IBM Cognos Viewer window** check box.
7. Click the **Report** tab, select the **Automatic group and summary behavior for lists** check box, and then click **OK**.
8. Ctrl-click **Quantity** and **Revenue**, and then drag them to the list.  
Notice that there is now an overall aggregate summary in the list footer.
9. Click the **Retailer type** column, and then on the toolbar click **Group / Ungroup** .  
Notice that the Retailer type column has been grouped and moved to the beginning of the report.
10. Run the report.  
The IBM Cognos Viewer window runs fully expanded.
11. Navigate to the bottom of the report to view the report summary.
12. Close **IBM Cognos Viewer**.  
Due to the complexity of the final report, we will turn off the aggregate summary feature.
13. Click **Undo**, and then click **Undo** again.
14. From the **Tools** menu, click **Options**.
15. Click the **Report** tab, clear the **Automatic group and summary behavior for lists** check box, and then click **OK**.

---

Task 1, step 6, allows IBM Cognos Viewer to be expanded automatically. Task 1, step 14, Review the Options/View tab for **Position pane on the right (requires restart)**. Indicate that the authors have the option of positioning the Insertable Objects and Properties panes on the right-hand side of the work window.

## Task 2. Group and Span Columns

1. From **Sales fact**, Ctrl-click **Quantity**, and **Revenue**, and then drag them to the list.
2. In the list, Ctrl-click the **Product line**, **Product type** and **Product** columns, and then click **Group / Ungroup** .
3. Click the **Product type** List Column Body.
4. In the **Properties** pane, under **Data**, click **Group Span**, and then in the list, select **Product**.
5. On the toolbar, click **Run Report**.

The results appear as follows:

Product line	Product type	Product	Retailer type	Quantity	Revenue
Camping Equipment	Cooking Gear	TrailChef Canteen	Department Store	211,339	2,426,658.9
			Direct Marketing	38,688	468,360.18
			Equipment Rental Store	6,641	72,910.87
			Outdoors Shop	222,831	2,682,916.23
			Sports Store	362,970	4,170,027.41
			Warehouse Store	123,254	1,512,645.06
	Cooking Gear	TrailChef Cook Set	Department Store	229,456	11,509,856.38
			Direct Marketing	72	0
			Equipment Rental Store	15,597	824,622.11
			Outdoors Shop	266,064	13,678,387.26
			Sports Store	212,161	10,435,911.03
			Warehouse Store	90,430	4,735,498.12


Product type is spanned by Product. Every time Product changes the Product type is repeated.

6. Close **IBM Cognos Viewer**.



### Task 3. Add a list page header, an overall header, and a group header.

You want to add a list page header for the report and an overall header to add additional information to the report.

1. On the toolbar, click **Headers & Footers** .
2. Click **List Headers & Footers**.
3. Select the **List page header** and **Overall header** check boxes, and then click **OK**.
4. In the list object, double-click **List Page Header**.
5. In the **Text** box, type **Revenue by Retailer Type** and then click **OK**.
6. With the list page header still selected, on the toolbar, change the font to **Arial Black**, and change the size to **12 pt**.
7. In the list object, double-click **Overall**.
8. In the **Text** box, type **Attention: Sales Managers** and then click **OK**.
9. In the work area, click the **Product line** column.
10. On the toolbar click **Headers & Footers**.
11. Click **Create Header**.
12. With the **Product line** column still selected, click **Delete**.

13. On the toolbar, click **Run Report**.

A section of the results appear as follows:


Product type	Product	Retailer type	Quantity	Revenue
<b>Revenue by Retailer Type</b>				
<b>Attention: Sales Managers</b>				
<b>Camping Equipment</b>				
Cooking Gear	TrailChef Canteen	Department Store	211,339	2,426,658.9
		Direct Marketing	38,688	468,360.18
		Equipment Rental Store	6,641	72,910.87
		Outdoors Shop	222,831	2,682,916.23
		Sports Store	362,970	4,170,027.41
		Warehouse Store	123,254	1,512,645.06
Cooking Gear	TrailChef Cook Set	Department Store	229,456	11,509,856.38
		Direct Marketing	72	0
		Equipment Rental Store	15,597	824,622.11
		Outdoors Shop	266,064	13,678,387.26
		Sports Store	212,161	10,435,911.03
		Warehouse Store	90,430	4,735,498.12

14. Close **IBM Cognos Viewer**.

---

Make note to the students that when a header is created from a column, the header stays within the list object. You cannot create a header out of a spanned column. Also note that the List Column titles can be moved to the start of the details of the report. This capability will be discussed in a later module.

## Task 4. Format and sort a column.

1. In the work area, click the **Revenue** List Column Body.  
Notice that List Column Body appears in the Properties pane.
2. On the toolbar, click **Sort** , and then click **Descending**.
3. With the **Revenue** column still selected, in the **Properties** pane, click **Data Format**, and then click the **ellipsis**.
4. In the **Format type** list, click **Currency**.
5. Under **Properties**, click **Currency**, and then in the list, click **\$ (USD) - United States of America, dollar**.
6. Click **OK**.

## Task 5. Format the body cells in a column.

1. Click the **Retailer type** List Column Body.
2. On the toolbar, in the **Font** list, click **Arial**, and then click **Italic**.

---

Show the students that when a column is sorted the sort icon appears in the list column title cell.


3. Click **Foreground Color** , and then click **Purple**.

The font properties are applied to the body cells in the **Retailer type** column.

The results appear as follows:

Product type	Product	Retailer type	Quantity	Revenue
<b>Revenue by Retailer Type</b>				
Attention: Sales Managers				
<Product line>				
<Product type>	<Product>	<Retailer type>	<Quantity>	<Revenue>
<Product type>	<Product>	<Retailer type>	<Quantity>	<Revenue>
<Product type>	<Product>	<Retailer type>	<Quantity>	<Revenue>
<Product type>	<Product>	<Retailer type>	<Quantity>	<Revenue>
<Product line>				
<Product type>	<Product>	<Retailer type>	<Quantity>	<Revenue>
<Product type>	<Product>	<Retailer type>	<Quantity>	<Revenue>
<Product type>	<Product>	<Retailer type>	<Quantity>	<Revenue>
<Product type>	<Product>	<Retailer type>	<Quantity>	<Revenue>

## Task 6. Format an entire column.

1. With the body cells in the **Retailer type** column still selected, in the **Properties** pane, click **Select Ancestor** , and then click **List Column**.

- In the **Properties** pane, under **Font & Text**, double-click the **Font** cell, in the **Family** list click **Arial**, in the **Size** list click **12pt**, in the **Weight** list click **Bold**, the change the **Foreground Color** to **Green**, and then click **OK**.

The results appear as follows:



Product type	Product	Retailer type	Quantity	Revenue▼
<b>Revenue by Retailer Type</b>				
Attention: Sales Managers				
<Product line>				
<Product type>	<Product>	<Retailer type>	<Quantity>	<Revenue>
<Product type>	<Product>	<Retailer type>	<Quantity>	<Revenue>
<Product type>	<Product>	<Retailer type>	<Quantity>	<Revenue>
<Product type>	<Product>	<Retailer type>	<Quantity>	<Revenue>
<Product line>				
<Product type>	<Product>	<Retailer type>	<Quantity>	<Revenue>
<Product type>	<Product>	<Retailer type>	<Quantity>	<Revenue>
<Product type>	<Product>	<Retailer type>	<Quantity>	<Revenue>
<Product type>	<Product>	<Retailer type>	<Quantity>	<Revenue>

The color property is applied only to the column title because the List Column Body formatting overrides the List Column formatting. However, because you have not set the size or weight for the column body, the value in the cells now appears in 12 pt bold font.

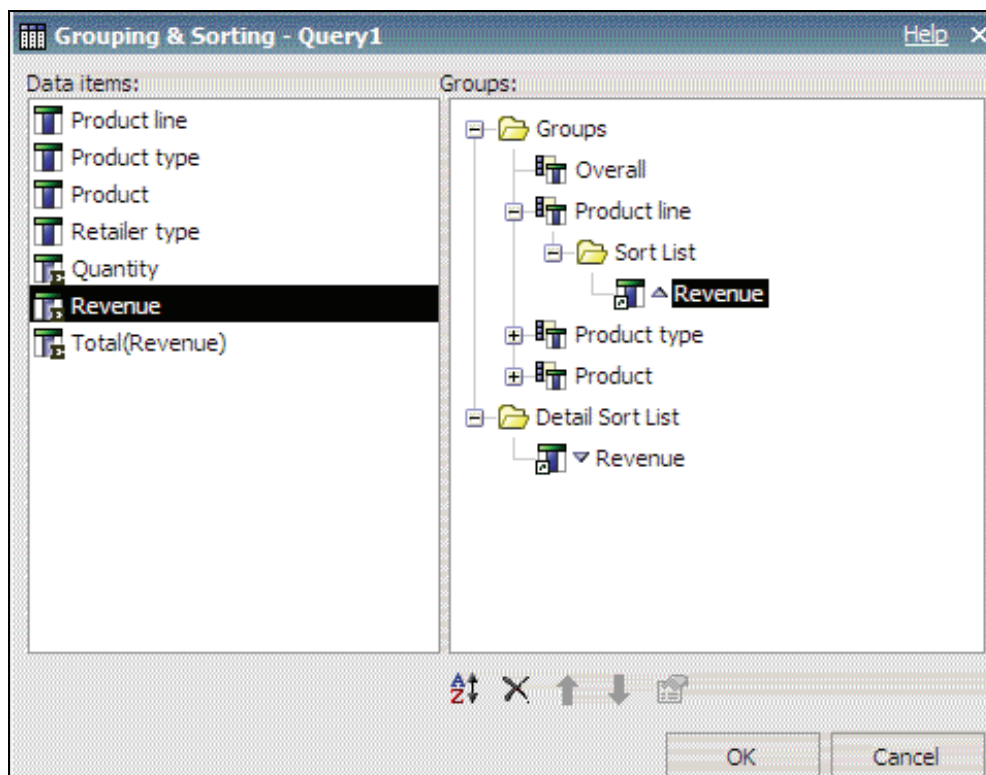
**INTERACTION – Before making any changes - Microphone:** When we change the font color for the List Column, what change if any will occur in the List Column Body?

Answer: The font color will not change in the list column body because we have previously set it to purple.

## Task 7. Sort the Product line column by Revenue generated.

1. Click the **Revenue** column, on the toolbar, click **Summarize** , and then click **Total**.
2. In the upper left corner of the Product type header cell click the **Container Selector**  to select the entire list.
3. In the **Properties** pane, under **Data**, double-click **Grouping & Sorting**.  
Because Product line, Product type, and Product are grouped, these items appear under the Groups folder.
4. In the **Groups** pane, expand **Product line**, and then from the **Data items** pane, drag **Revenue** to the **Product line Sort List** folder.

The results appear as follows:



The Product line column will now be sorted in ascending order based on the revenue generated by each product line. The product line that generated the least revenue will appear at the beginning of the report.

- Click **OK**, and then on the toolbar click **Run Report**.

The results appear as follows:

Product type	Product	Retailer type	Quantity	Revenue
Revenue by Retailer Type				
Attention: Sales Managers				
Outdoor Protection				
First Aid	Aloe Relief	Department Store	51,891	\$234,186.66
		Direct Marketing	37,792	\$196,850.32
		Sports Store	33,795	\$155,701.31
		Outdoors Shop	25,132	\$127,549.56
		Warehouse Store	7,359	\$38,278.37
		Golf Shop	2,535	\$13,258.05
		Equipment Rental Store	1,043	\$3,932.96
Aloe Relief - Total				\$769,757.23

Since Outdoor Protection generated the least revenue, it appears at the beginning of the report.

- Close **IBM Cognos Viewer**.
- Click **OK**.

Leave Report Studio open for the next demo.

### Results:

You created a list report that grouped Product line, Product type, and Product name. You highlighted retailer type; you sorted revenue in descending order according to the quantity sold.

## Understand Fact/Measure Data

- You can aggregate fact data to show trends or summaries.

Employee name	Product line	Revenue
Agatha Reyes	Camping Equipment	9,596,483.77
	Golf Equipment	1,966,340.45
	Mountaineering Equipment	5,546,852.83
	Outdoor Protection	991,736.35
	Personal Accessories	5,996,116.9
<b>Agatha Reyes</b>		<b>24,097,530.3</b>

**Detail rows**

**Summary row**

Show minimum, maximum, average, total, count, or calculated data.

The Rollup Aggregate Function specifies the type of aggregation to apply to summarize values. These values appear at the higher levels of list and crosstabs. The default setting is Automatic. The setting of Automatic indicates that the aggregation applied is based on the data type of the query item. Therefore, an integer data type with rollup aggregation set to automatic provides total aggregation. The report on the slide illustrates rollup aggregation set to Total.

The Aggregate function specifies the type of aggregation to apply to individual values which appear as detail rows in lists or crosstabs.

These property values and many others can be set for all authors in Framework Manager to centralize administration.

**INTERACTION - Microphone:** facilitate a discussion on how the report would look if Aggregate Function were set in this list report?

**INTERACTION - Whiteboard:** Summarize by discussing the default settings of Aggregate Function = Total, and Rollup Aggregate Function = Automatic.



## Understand Aggregate Data

- You can show your data as summarized aggregated data or as detailed non-aggregated data.

### Default Aggregation

Alberto Pera	Camping Equipment	10,992,354.47
	Golf Equipment	4,216,900.77
	Mountaineering Equipment	4,101,252.31
	Outdoor Protection	722,484.15
	Personal Accessories	2,806,558.53
Alessandra Torta	Camping Equipment	17,918,023.16
	Golf Equipment	4,515,924.24
	Mountaineering Equipment	5,497,023.8
	Outdoor Protection	761,966.93
	Personal Accessories	4,843,734.56

Alberto Pera	Camping Equipment	10,992,354.47
	Golf Equipment	4,216,900.77
	Mountaineering Equipment	4,101,252.31
	Outdoor Protection	722,484.15
	Personal Accessories	2,806,558.53
Total		22,839,560.23
Alessandra Torta	Camping Equipment	17,918,023.16
	Golf Equipment	4,515,924.24
	Mountaineering Equipment	5,497,023.8
	Outdoor Protection	761,966.93
	Personal Accessories	4,843,734.56
Total		33,536,672.69

### Rollup Aggregate Set to Total

### Auto Group and Summarize set to No

Employee name	Product line	Revenue
Alberto Pera	Camping Equipment	68,039.79
	Camping Equipment	8,191.18
	Camping Equipment	15,315.3
	Camping Equipment	25,833.6
	Camping Equipment	22,866.3
	Camping Equipment	90,874.08
	Camping Equipment	85,039.05
	Camping Equipment	35,438.94
	Camping Equipment	10,418.34
	Camping Equipment	10,142.1

By default, the data will be grouped and summarized, at its lowest level of detail, because of the Auto Group and Summarize property that is applied to the query. This aggregation is applied at the initial query.

The rollup aggregated function summarizes grouped data and is applied after data is retrieved.

The left hand list shows a list report with all of the default aggregation settings and no grouping applied; Aggregate Function is set to Total, by default, in the model package, Rollup Aggregation is set to Automatic since there is no grouping.

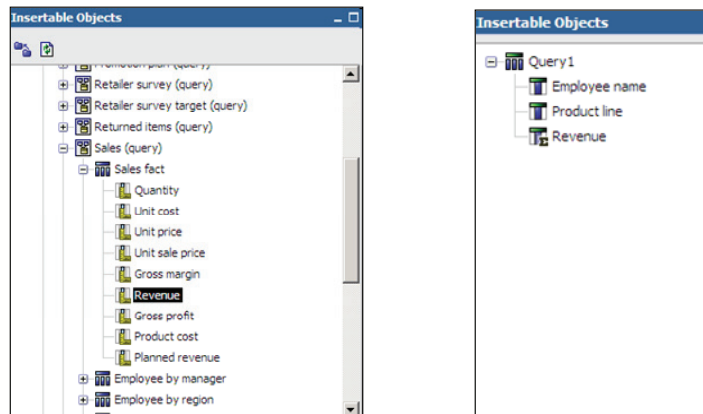
**Aggregate Function** - aggregates items at the lowest level of detail and is set by the data modeler for the package. This aggregation is applied only when the query's Auto Group and Summary is set to Yes.

**Rollup Aggregation** - is applied, by the report author, to grouped items and provides a higher level aggregation, as seen by the center list report.

The right hand list report shows results with the query's Auto Group and Summary set to No.

## Understand Difference in Aggregation

- You can use data items for your query from the Source tab or the Data Items tab



Data items selected from the source tab will be calculated and summarized prior to aggregation.

Data items selected from the Data Items tab will be calculated and summarized after aggregation.

Fact data items should be selected from the Data Items tab if they are to be used multiple times in a report or calculation, since they would not be re-aggregated based upon the entire query. This prevents any double counting of the fact data item and provides predictable results.

**INTERACTION - Microphone:** Ask the students why we would not want to drag a duplicate fact item from source tab. Make sure that they understand that an additional copy of a data item dragged from the source tab would then be calculated and summarized after the initial summarization and provide unpredictable results.

## Demo 2: Explore Data Aggregation

### Purpose:

You have been asked to create a report that lets management compare how different order methods are performing for each product line. This report should display the revenue individual order methods generate for each product line and the average revenue all order methods generate for each product line. You will create this report and examine the underlying query model at various stages.

Server: localhost  
User/Password: bretttonf/Education1!  
Studio: Report Studio  
Package: Go Data Warehouse (query)  
Report Type: List  
Folder: Sales and Marketing (query)  
Namespace: Sales (query)

### Task 1. Create a basic report and examine the query model.

1. From the **Insertable Objects** pane, **Source** tab, add the following query items to the list report.
  - **Products** → **Product line**
  - **Order method** → **Order method type**
  - **Sales fact** → **Revenue**
2. Point to **Query Explorer**, and then click **Query1**.

Notice the three data items in the Data Items pane. Each data item corresponds to an item in a column in the list report.

3. In the **Data Items** pane, click **Revenue**.

In the Properties pane notice that the Aggregate Function property is set to Total. When the query groups and summarizes data at the lowest level of detail, the query will summarize data by calculating total revenue generated at the lowest level of detail. In our report, the lowest level of detail is Revenue generated by each Order method type.

You have not yet added any aggregate revenue values for grouped data items in report layout. Therefore, the Rollup Aggregate Function property for Revenue is set to Automatic.

4. On the toolbar, click **Run Report**.

A section of the results appear as follows:

Product line	Order method type	Revenue
Camping Equipment	E-mail	75,899,094.63
Golf Equipment	E-mail	47,933,933.16
Mountaineering Equipment	E-mail	7,476,451.96
Outdoor Protection	E-mail	5,882,477.87
Personal Accessories	E-mail	42,651,086.54
Camping Equipment	Fax	23,054,398.48

You can examine the revenue generated by each product line using each order method.

5. Close **IBM Cognos Viewer**.

## Task 2. View individual records rather than data grouped and summarized at the lowest level of detail.

You decide you want to view the amount of revenue generated by each order made using a particular Order method type for each product line. To achieve this result, you will set the Auto Group & Summarize property for this query to No.

1. Point to **Query Explorer**, and click **Queries**, and then click **Query1**.
2. In the **Properties** pane, click the **Auto Group & Summarize** cell, and then in the list, click **No**.
3. On the toolbar, click **Run Report**.

A section of the results appear as follows:

Product line	Order method type	Revenue
Outdoor Protection	Sales visit	6,983.03
Golf Equipment	Telephone	41,958.76
Golf Equipment	Telephone	35,949.86
Golf Equipment	Telephone	5,921.28
Personal Accessories	Sales visit	11,570.01
Outdoor Protection	Sales visit	10,123.2

The report no longer displays a single row for the total revenue generated by all sales of each product line using a specific order method type. Instead, it displays individual rows containing the revenue generated by each individual sale that used a specific order method type for each product line.

For example, the second row in the report displays data for a golf equipment sale made by telephone. This sale generated \$41,958.76 in revenue.

If you wanted to display these individual records in our final report, you would group and sort this data to make it easier to read. However, you decide you would prefer to have this data grouped and summarized at the lowest level of detail.

**INTERACTION - Toolbar Emoticons > Raise Hand:** After Step 3, ask participants to identify what other setting would yield the same results as Auto Group & Summarize set to No?

Answer: Aggregate Function set to None.

4. Close **IBM Cognos Viewer**.
5. In the **Properties** pane for **Query1**, click the **Auto Group & Summarize** cell, and then in the list, click **Yes**.

### **Task 3. Group query items, add aggregate data, and observe the results in the query.**

You want to group this data by product line and add aggregate data to display the average revenue generated by all order method types for each product line.

1. Point to **Page Explorer**, and then click **Page1**.
2. In the list report, click the **Product line** column, and then on the toolbar, click **Group / Ungroup**.

The product line column is grouped and you can now include aggregate data at a higher level of detail. You want to see the average revenue generated by all order method types for each product line, and for all product lines.

3. In the list report, click the **Revenue** column.
4. On the toolbar, click **Summarize**, and then click **Average**.

You will examine how the aggregation you specified has changed the Rollup Aggregate Function for the Revenue data item in this query.

5. Point to **Query Explorer**, click **Query1**, and then in the **Data Items** pane click **Average(Revenue)**.

In the **Properties** pane, notice that the **Aggregation Method** property for **Average Revenue** is now set to **Average**. This is because you have specified that revenue for grouped items in the report be aggregated to display the average revenue generated.

6. On the toolbar, click **Run Report**.

A section of the result appears as shown below:

Product line	Order method type	Revenue
Camping Equipment	E-mail	75,899,094.63
	Fax	23,054,398.48
	Mail	21,348,644.09
	Sales visit	168,611,961.87
	Special	12,388,989.44
	Telephone	153,894,892.13
	Web	1,133,838,683.39
Camping Equipment - Average		227,005,237.718571
Golf Equipment	E-mail	47,933,933.16
	Fax	15,241,303.27
	Mail	12,693,287.48
	Sales visit	39,240,918.73
	Special	4,964,762.97
	Telephone	78,730,112.65
	Web	527,607,049.63
Golf Equipment - Average		103,773,052.555714

In this report, data is grouped by product line. Below each product line row is an aggregate row displaying the average revenue generated by all order method types for that product line.

You can see that for all product lines, revenue generated by the Web method far exceeded those of other order methods.

7. Close **IBM Cognos Viewer**.

8. From the **Run** menu, click **View Tabular Data**  **View Tabular Data**.

9. Click **OK** in the warning box.

Notice that although you grouped the Product line data item in the report layout, in the tabular data retrieved for the query, product line data is still ungrouped. This option retrieves the data without any grouping or formatting.

10. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next demo.

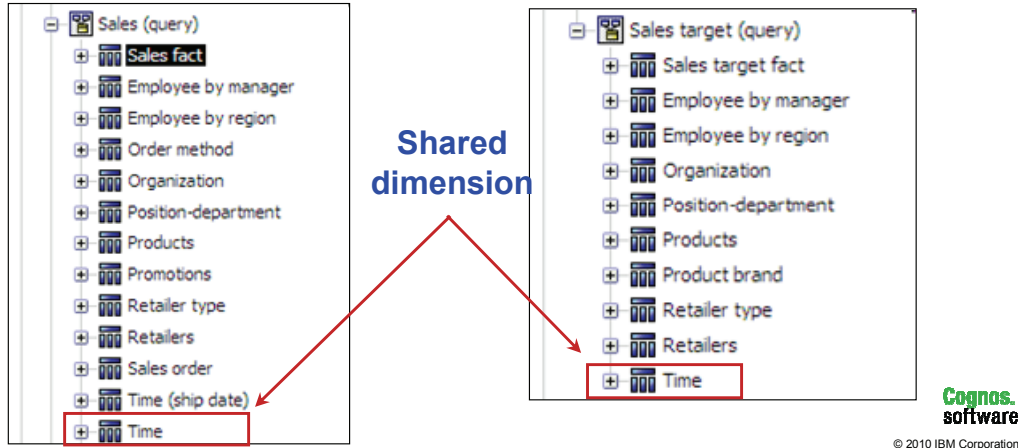
### **Results:**

**You created a list report displaying revenue generated by each order method for each product line and the average revenue all order methods generate for each product line. You also specified that the query should display individual data records instead of grouped and summarized data, and compared the results.**



## Use Shared Dimensions to Create Multi-fact Queries

- When authoring reports with multiple facts across the business, it is necessary to use at least one shared dimension item to ensure correlated results.



A shared dimension is created when the data modeler has ensured that the dimension is normalized and has the same meaning throughout the different business units.

Shared dimensions are also known as conformed dimensions.

Results of multiple-fact queries can vary if the level of granularity differs or you use a non-conformed dimension. For example, in the Go Data Warehouse package, the granularity for time differs between Sales target and Revenue. Sales targets are recorded monthly, whereas, the Revenue is recorded on a daily basis. This is not an issue when reporting and will not cause confusing results if you report at a common level of granularity, in this case, the month level. If you report at the day level, inventory levels will simply display repeating values, the month total for every day of the month in the report. These values will not be double-counted.

**INTERACTION - Toolbar Emoticons > Yes/No:** To find out if they have conformed dimensions, ask participants if they will be using multiple fact queries.

**INTERACTION - Microphone:** For those that answer Yes, ask them to name any that might be conformed.

## Demo 3: Create a Multi-Fact Query in a List report

### Purpose:

You are required to create a report showing sales revenue and target revenue for each year. You will need to use shared query items in the report to ensure the results are accurate and consistent with expected results.

Server: localhost  
 User/Password: brettontf/Education1!  
 Studio: Report Studio  
 Package: Go Data Warehouse (query)  
 Report Type: List  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)/Sales target (query)

### Task 1. Add two facts from different query subjects to a list report.

1. Add the following query items to the list report:
  - Sales (query) → Sales fact → Revenue
  - Sales target (query) → Sales target fact → Sales target
2. On the toolbar, click **Run Report**.

The results appear as follows:

Revenue	Sales target
4,686,775,768.85	4,205,368,540

These are the two distinct aggregated totals for Revenue and Sales target. These values were returned as a result of two separate Select statements.

3. Close **IBM Cognos Viewer**.

## Task 2. Add context to the list

You will add a query item to give context and meaning to the numbers that are already in the list. You will add the year in which the orders closed as a point in time to compare revenue to sales target.

1. From the **Sales (query)** namespace, add the following query item to the beginning of the report:

**Time (close day) → Year (close date)**

2. On the toolbar, click **Run Report**.

The results appear as follows:

Year (close date)	Revenue	Sales target
2004	907,292,137.51	4,205,368,540
2005	1,144,204,628.01	4,205,368,540
2006	1,497,596,605.86	4,205,368,540
2007	1,137,682,397.47	4,205,368,540

You can see the Revenue values change with each year, but the Sales target values do not. This is because the Time (close day) is not a conformed dimension. This dimension is not shared by both the Revenue and Sales target facts. The Sales target fact has no relationship to Time (close day).

3. Close **IBM Cognos Viewer**.

### **Task 3. Add a query item from a shared dimension to the list report.**

You will add a shared dimension to the report. This dimension will have a relationship to both Revenue and Sales target.

1. In the **Insertable Objects** pane, under **Sales target (query)**, point to **Time**.  
The Sales target (query) namespace contains a dimension called Time. Notice there is no dimension called Time (close date), which confirms what you already saw from running the report: Time (close date) is not shared across the facts.
2. In the **Insertable Objects** pane, under **Sales (query)**, point to **Time**.  
**Time** exists in both the Sales target (query) and the Sales (query) namespaces; therefore, it is a shared dimension.
3. In the **Insertable Objects** pane, under **Sales (query)**, expand **Time**, and drag **Year** to the beginning of the list.

4. On the toolbar, click **Run Report**.

The results appear as follows:

Year	Year (close date)	Revenue	Sales target
2004	2004	907,292,137.51	812,885,300
2004	2005	7,060,666.21	812,885,300
2005	2005	1,137,143,961.8	1,036,923,300
2005	2006	22,051,628.36	1,036,923,300
2006	2006	1,475,544,977.5	1,332,553,100
2006	2007	20,346,123.4	1,332,553,100
2007	2007	1,117,336,274.07	1,023,006,840

The Sales target numbers now change from year to year. In 2004, there was 7,060,666.21 worth of orders that were placed in that year, but did not close until 2005. The orders that were placed in 2004 and closed in that same year totaled 907,292,137.51. Because Sales target has no relationship to the non-conformed dimension, Year (close date), it just repeats the value it knows for 2004. This is an example of the inaccurate results that can occur when using non-conformed query items with multi-fact reports. Therefore, you should use conformed query items.

5. Close **IBM Cognos Viewer**.

## Task 4. Delete a query item from the list report.

You want to delete the Year (close date) query item and only have the Year query item, from a conformed dimension, in the list.

1. In the list, click **Year (close date)**, and then click **Delete**.
2. On the toolbar, click **Run Report**.

The results appear as shown below:

Year	Revenue	Sales target
2004	914,352,803.72	812,885,300
2005	1,159,195,590.16	1,036,923,300
2006	1,495,891,100.9	1,332,553,100
2007	1,117,336,274.07	1,023,006,840

The Revenue and Sales target numbers now change from year to year. All data is consistent in the report.

3. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next demo.

### Results:

**You created a report showing sales revenue and target revenue for each year. You used a conformed dimension in the report to ensure the results were accurate and consistent with expected results.**

## Add Repeated Information to Reports

- You can use either repeaters or repeater tables to present repeated information

### Repeater Table

Mailing List	
Address line 1	Address line 1
Address line 2	Address line 2
Address line 3	Address line 3
Address line 1	Address line 1
Address line 2	Address line 2
Address line 3	Address line 3

**Cognos.**  
software

© 2010 IBM Corporation

Use repeaters to repeat item across a single row without a particular structure.

Use repeater tables to repeat items in a table structure, such as mailing label information.

## Demo 4: Create a Mailing List Report

### Purpose:

You will create a mailing list for all of your sales offices. The addresses must be listed alphabetically by county with the country name appearing at the top. For easy readability, each page must contain no more than three addresses across and four down.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	Repeater Table
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

### Task 1. Create a repeater table report.

1. In the **Insertable Objects** pane, click the **Toolbox** tab.
2. Drag a **Table** into the drop zone at the top of the work area.



3. In the **Insert Table** dialog box, change the number of columns to **1**, the number of rows to **7**, and then click **OK**.

The work area contains a two-column, three-row repeater table containing six tables, each having one column and seven rows.

The results appear as follows:


## Task 2. Add items to the tables.

1. In the **Insertable Objects** pane, click the **Source** tab.
2. Expand **Employee by region**, and then drag **Country** into the first cell of the first 1x7 table.
3. Drag **Address 1**, **Address 2**, **City**, **Province or State**, **Postal zone**, and **Country** into the remaining table cells.

The results appear as follows:

<Country> <Address 1> <Address 2> <City> <Province or State> <Postal zone> <Country1>	<Country> <Address 1> <Address 2> <City> <Province or State> <Postal zone> <Country1>
<Country> <Address 1> <Address 2> <City> <Province or State> <Postal zone> <Country1>	<Country> <Address 1> <Address 2> <City> <Province or State> <Postal zone> <Country1>
<Country> <Address 1> <Address 2> <City> <Province or State> <Postal zone> <Country1>	<Country> <Address 1> <Address 2> <City> <Province or State> <Postal zone> <Country1>

Task 2, Step 3. When you add multiple instances of the same data item (as in this case you added the same Country item twice) the second and subsequent items will be numbered to show that it is a duplicate entry.

An alternative would be to drag Country from the Data Items tab.

### Task 3. List countries in alphabetical order and apply a style to the headers.

1. Click the **Country** text item at the top of one of the tables, ensuring you select only the text item and not the entire cell.

All of the Country items at the top of each table are selected.

2. On the toolbar, click **Sort**, and then click **Ascending**.


A Sort Ascending icon appears beside the Country item in the first table.

3. With the **Country** items still selected, from the toolbar expand the **Size** list, and then select **12 pt**.

4. From the toolbar, click **Bold**.

The Country headers appear in bold black text.

### Task 4. Change the frequency and positioning of the tables.

1. Click on the **Container Selector**  in the top left-hand corner of the **Repeater Table** to select the entire container.
2. In the **Properties** pane, under **General**, change **Across** to **3**, change **Down** to **4**, and then press **Enter**.
3. Under **Positioning**, double-click **Table Properties**, select **Fixed size**, and then click **OK**.

4. On the toolbar, click **Run Report**.

A section of the results appear as follows:

<b>Australia</b> 2315 Queen's Ave Level 2 Melbourne VIC 2088 Australia	<b>Austria</b> Jedleser Straße 7 Wien A-1210 Austria	<b>Belgium</b> Interleuvenlaan 2 Heverlee B-3001 Belgium
<b>Brazil</b> Avenida Paulista, 333 CJ 231 2o. Andar São Paulo SP 01403-090 Brazil	<b>Canada</b> 7800, 756 - 6th Avenue. S.W. Calgary Alberta T2P 3Z0 Canada	<b>Canada</b> 789 Yonge Street Toronto Ontario M2M 4K8 Canada

5. Close **IBM Cognos Viewer**.

Leave Report Studio open for the workshop.

### Results:

**You created a mailing list and added the country name at the top of each address as a header and displayed the addresses alphabetically by country. The addresses were displayed, with no more than three addresses across and four down each page.**

## Summary

- At the end of this course, you should be able to:
  - group, format, and sort list reports
  - describe options for aggregating data
  - create a multi-fact query
  - create a report with repeated data

**INTERACTION - Check Sticker:** Use the check mark to highlight each objective as it is summarized.

## Workshop 1: Create and Format a List Report

You want to create a list report with data in which users can see the gross profit generated by retailer type in each region.

To accomplish this:

- Create a list report using the GO Data Warehouse (query) package.
- Add the following items:
  - Retailer type
  - Region
  - Gross profit
- Group Retailer type.
- Sort Gross profit as descending.
- Aggregate Gross profit by Total.

For more detailed information outlined as tasks, see the Task Table section.

For the final query results, see the Workshop Results section that follows the Task Table section.

## Workshop 1: Task Table

<b>Task 1. Create and sort a list report.</b>	
<b>Where to Work</b>	<b>Hints</b>
GO Data Warehouse (query) package	<ul style="list-style-type: none"> <li>• Create a list report.</li> </ul>
Sales and Marketing (query), Sales (query)	<ul style="list-style-type: none"> <li>• Add Retailer type (from Retailer type), Region (from Retailers), and Gross profit (from Sales fact).</li> </ul>
Insertable Objects pane	<ul style="list-style-type: none"> <li>• Group: Retailer type.</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>• Sort: Gross profit descending.</li> </ul>
<b>Task 2: Format the list and perform aggregation.</b>	
<b>Where to Work</b>	<b>Hints</b>
Work area	<ul style="list-style-type: none"> <li>• Add Title: Gross Profit by Retailer Type and Region Font: Arial Black Alignment: Left.</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>• Total Gross profit.</li> </ul>

If you need more information to complete a task, see the Step-by-Step instructions at the end of the Workshop.

## Workshop 1: Workshop Results

At the end of Task 2, a section of the results appear as follows:

<b>Gross Profit by Retailer Type and Region</b>		
Retailer type	Region	Gross profit
Department Store	Americas	111,543,822.41
	Asia Pacific	98,425,260.8
	Central Europe	77,587,318.45
	Northern Europe	39,559,098.97
	Southern Europe	36,177,713.46
Department Store - Total		363,293,214.09
Direct Marketing	Asia Pacific	10,763,419
	Central Europe	7,054,511
	Americas	6,419,647.17
	Northern Europe	3,932,561.37
	Southern Europe	2,270,788.95
Direct Marketing - Total		30,440,927.49




## Workshop 1: Step-by-Step Instructions

Server: localhost  
 User/Password: brettonf/Education1!  
 Studio: Report Studio  
 Package: Go Data Warehouse (query)  
 Report Type: List  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Create and sort a list report.

- From the **Insertable Objects** pane, on the **Source** tab, add the following query items to the list.
  - **Retailer type** → **Retailer type**
  - **Retailers** → **Region**
  - **Sales fact** → **Gross profit**
- Click the **Retailer type** column, and click **Group / Ungroup**.
- Click the **Gross profit** column, click **Sort**, and then click **Descending**.

### Task 2. Format the list and perform aggregation.

- Double-click the heading text, type **Gross Profit by Retailer Type and Region** and then click **OK**.
- From the toolbar, change the font to **Arial Black**.
- Click the **Page Header** block (not the text item), and then from the toolbar, click **Left** .
- Click the **Gross profit** column, on the toolbar click **Summarize**, and then click **Total**.
- On the toolbar, click **Run Report**.
- Close **IBM Cognos Viewer**, close **Report Studio** without saving changes, and then close **Internet Explorer**.





---

# Focus Reports Using Filters

IBM Cognos BI



**Business Analytics**

© 2010 IBM Corporation



## Objectives

- At the end of this course, you should be able to:
  - create filters to narrow the focus of reports
  - examine detail and summary filters
  - determine when to apply filters on aggregate data


If you intend to teach this module as part of a custom course, students should be familiar with:

- Report Studio Basics
- List Reports

Suggested modules to reference:

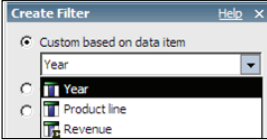
- Introduction to the Reporting Application
- Create List Reports

**INTERACTION - Star Sticker:** Use the star sticker to highlight each objective as it is introduced.

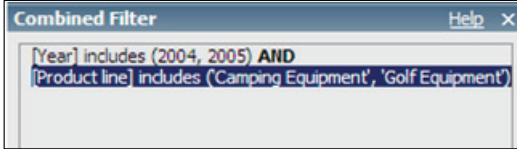
Business Analytics


## Create Filters

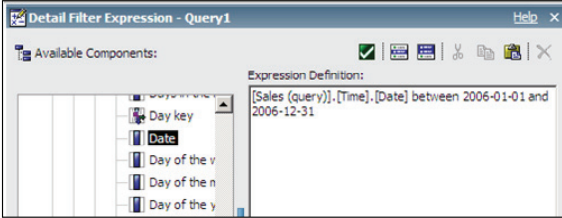
- To narrow the focus of your report, you can create filters that are:




**Custom based on data item**



**Combined**



**Advanced**

  
© 2010 IBM Corporation

Add a filter expression to focus a report and minimize processing time by excluding unwanted data. For example, you can filter data to show only customers who placed purchase orders that were valued at over one thousand dollars during the past year. When you run the report, you see only the filtered data. You have the following options to create the filter:

**Custom based on data item:** create a simple filter condition based on selected values from only one data item in the query

**Combined:** combine filter conditions based on selected values from multiple data items in the query, into a single filter.

**Advanced:** create a filter condition that uses advanced calculations (expression editor) based on items in the query or from the data source.

## Filter Your Data with Advanced Detail Filters

- Create a detail filter to narrow your focus and report on specific data.

### Filter to show only sales revenue greater than \$100,000

Expression Definition
[Revenue]>100000

### Filter to show only data from January to June for the year 2006

Expression Definition
[Sales (query)].[Time].[Date] between 2006-01-01 and 2006-06-30

When you create a filter, you define conditions around query items to report on a specific subset of data.

A detail filter will be applied to all rows in the report.

For detail filters, filter any item in the package using the Source tab, or filter items in the report using the Data Items or Queries tab. Use the Functions tab to create filter calculations. Use the Parameters tab to use existing filters.

**INTERACTION - Whiteboard:** Initiate a discussion in to the differences between a detail filter and a Summary filter. When it is applied and to what it is applied. Use the whiteboard to show some examples.

## Demo 1: Apply Filters to a Report

### Purpose:

The Vice President of Sales has requested a report that shows sales performance in each country for 2006. He wants to see the performance for representatives in Southern Europe so he can present an award to the top seller when he visits next month.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	List
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

### Task 1. Open the Report.

1. In **Report Studio**, click **File, Open**, and navigate to **Public Folders\B5158\ Module 04\_Focus Reports Using Filters\Demo 1 Start**, and then click **Open**.



- On the toolbar, click **Run Report**.

A section of the results appear as follows:


City	Last name	First name	Position name	Revenue
<b>Australia</b>				
Melbourne	Cartel	Jake	Level 1 Sales Representative	4,283,418.14
	Farrel	Jonathan	Level 1 Sales Representative	2,260,515.45
	Fulford	Jackie	Level 2 Sales Representative	19,456,734.01
	Neely	Donald	Level 1 Sales Representative	1,089,148.84
	Sinden	John	Level 2 Sales Representative	4,965,193.22
	Smythe	Dave	Level 1 Sales Representative	16,652,383.41
	Walter	Alice	Level 3 Sales Representative	19,040,701.32
	Ward	Donald	Level 2 Sales Representative	19,815,234.63
<b>Melbourne</b>				<b>87,563,329.02</b>
<b>Australia</b>				<b>87,563,329.02</b>

- Close **IBM Cognos Viewer**.


## Task 2. Add a filter to show sales from 2006.

- On the toolbar, click **Filters** , and then click **Edit Filters**.

The Filters - Query1 dialog box appears. There are two tabs: one for creating filters at the detail level, and one for creating filters at the summary level.

- With the **Detail Filters** tab selected, click **Add** , and then click **Advanced**.
- In the **Available Components** pane, on the **Source** tab expand the **Sales and Marketing (query)** folder, expand **Sales (query)**, expand **Time**, and then double-click **Date**.

The Date query item appears in the Expression Definition pane. It also shows the namespace name and query subject that contains this item.

4. At the end of the expression, type **between 2006-01-01 and 2006-12-31**.
5. Click **Validate**  to check the expression for errors.
6. Click **OK**, and then click **OK** again.
7. On the toolbar, click **Run Report**.
8. At the bottom of the page, click **Bottom** to navigate to the end of the report.

The results appear as follows:

Seattle	Audrey	Lastman	Level 3 Sales Representative	13,535,227.17
	Bart	Scott	Level 2 Sales Representative	14,538,997.37
	George	Harrows	Level 3 Sales Representative	17,924,373.12
	Melanie	White	Level 1 Sales Representative	6,906,978.7
<b>Seattle - Total</b>				<b>52,905,576.36</b>
<b>United States - Total</b>				<b>164,986,189.21</b>
<b>Overall - Total</b>				<b>1,495,891,100.9</b>

Only 2006 sales are included in the report. If you view the last page of the report, you can see that total revenue was \$1,495,891,100.90 for 2006.

9. Close **IBM Cognos Viewer**.

### Task 3. Filter data to show only Southern European countries.

Note: The Southern European countries consist of Austria, Italy, and Spain.

1. On the toolbar, click **Filters**, and then click **Edit Filters**.



The Filters - Query1 dialog box appears showing the detail filter we just created. You will create another detail filter.

---

There are different ways of creating filters to achieve the same result. In Task 2, Step 4, you could create the expression [Year] =2006.

Create filters by adding operators and conditions to query items using SQL syntax.

**INTERACTION - Survey:** Ask the students to identify which filter type was used for the date range that was created in this task. (Detail or Summary)

2. Click **Add**, click **Advanced**, and then click **OK**.
3. In the **Available Components** pane, on the **Source** tab expand the **Sales and Marketing (query)** folder, expand **Sales (query)**, expand **Employee by region**, double-click **Country** to add it to the expression, and then type **in** at the end of the expression.
4. In the top right of the window, click **Select Multiple Values** .
5. In the **Select Multiple Values** window, Ctrl-click **Austria** and **Italy**, and then click the green arrow to add them as selected values.
6. On the left, click the **Page down** , click **Spain**, click the green arrow, and then click **Insert**.
7. Click **Validate**, click **OK** twice to close each dialog box.

8. On the toolbar, click **Run Report**.

The results appear as follows:

City	First name	Last name	Position name	Revenue
Austria				
Wien	Jutta	Shulz	Level 2 Sales Representative	9,938,792.37
	Sabine	Grüner	Level 3 Sales Representative	12,193,198.67
	Thomas	Schirmer	Level 1 Sales Representative	6,216,976.62
Wien - Total				28,348,967.66
Austria - Total				28,348,967.66
Italy				
Milano	Alberto	Pera	Level 1 Sales Representative	6,603,296.71
	Alessandra	Torta	Level 3 Sales Representative	9,049,090.7
	Mario	Esposito	Level 2 Sales Representative	11,284,621.77
	Rolando	Giordano	Level 2 Sales Representative	4,235,729.57
	Sergio	Ferrari	Level 1 Sales Representative	9,590,004.91
	Silvano	Allessori	Level 2 Sales Representative	4,859,409.87
Milano - Total				45,622,153.53
Italy - Total				45,622,153.53
Spain				
Bilbao	Agatha	Reyes	Level 2 Sales Representative	7,475,301.46
	Anica	Torres	Level 1 Sales Representative	5,401,311.8
	Lara	Broschat	Level 1 Sales Representative	5,210,721.27
	Tomás	Iglesias	Level 3 Sales Representative	11,769,059.22
	Yolanda	Torres	Level 3 Sales Representative	11,611,178.39
Bilbao - Total				41,467,572.14
Spain - Total				41,467,572.14
Overall - Total				115,438,693.33

You can see that in 2006, Italy generated the most revenue of Southern European countries, and Sabine Grüner from Austria earned the top sales rep award.

9. Close **IBM Cognos Viewer**.

Leave the report open for the next demo.

**Results:**

**You created a report with filters in order to report only on 2006 sales and to determine the top sales rep in Southern Europe**

**INTERACTION - Markup > My Arrow Tool:** Ask the students to identify which filter type was used for the Country Query Item.

Business Analytics



# Determine When to Apply a Filter with Aggregation

## Before Auto-aggregation

Navigation	121,958.34
Navigation	104,207.4
Knives	100,045.74
<b>Personal Accessories - Total</b>	<b>1,378,713.67</b>
<b>Overall - Total</b>	<b>496,713,003.2</b>

Individual data values for Navigation product type where revenue is greater than \$100,000

## After Auto-aggregation

Personal Accessories	Knives	305,646.3
	Navigation	1,073,067.37
<b>Personal Accessories - Total</b>		<b>1,378,713.67</b>
<b>Overall - Total</b>		<b>496,713,003.2</b>

Auto-summarized data values for Navigation product type where revenue is greater than \$100,000.

**Cognos.**  
software

© 2010 IBM Corporation

Aggregated data shows total, averages, or another form of summarized data.

**INTERACTION - Survey:** A report is filtered on Year = 2008. Should the Year filter be set to Before Auto-aggregation, or After Auto-aggregation? Provide reasoning for your answer.

## Demo 2: Apply a Detail Filter on Fact Data to a Report

### Purpose:

You need to make a report displaying the total revenue produced by top-performing products. To create this report, you will add several filters and examine how they affect the query.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	List
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

### Task 1. Open the report


1. In **Report Studio**, click **File, Open**, and navigate to **Public Folders\B5158\Module 04\_Focus Reports Using Filters\Demo 2 Start**, and then click **Open**.

- On the toolbar, click **Run Report**.

A section of the results appear as follows:

Product line	Product type	Revenue
Camping Equipment	Cooking Gear	272,835,984.18
	Lanterns	126,925,660.64
	Packs	351,880,402.84
	Sleeping Bags	309,172,888.35
	Tents	528,221,728.02
Camping Equipment - Total		1,589,036,664.03
Golf Equipment	Golf Accessories	51,514,343.88
	Irons	254,814,337.99
	Putters	106,184,271.37
	Woods	313,898,414.65
Golf Equipment - Total		726,411,367.89

The Product line data is grouped and an aggregate row displays the total revenue generated by all product types in each product line. Notice that Cooking Gear for the Camping Equipment product line generated \$272,835,984.18 in revenue. You will compare this number with the revenue number generated later in Task 3.

- Close **IBM Cognos Viewer**.
- On the **Explorer** bar, point to **Query Explorer** , and then click **Query1**.
- In the **Data Items** pane, click **Revenue**.

In the Properties pane, notice that that Aggregate Function property for Revenue is set to Total. This is because in the layout you added an aggregate row displaying total revenue for grouped items in the report.

---

Working in Query Explorer is further discussed in *IBM Cognos Report Studio: Author Professional Reports Advanced (V10.1)*.



6. On the toolbar, click **Up**, and then in the work area, click **Query1**.

In the Properties pane, notice the Auto Group & Summarize property for the query is set to Yes. You want to view each individual data record, so you will change this property to No.

7. In the **Properties** pane, click the **Auto Group & Summarize** cell, in the list, click **No**.
8. On the toolbar, click **Run Report**.

A section of the results appear as follows:

Product line	Product type	Revenue
Camping Equipment	Tents	2,300.76
	Packs	41,543.16
	Cooking Gear	10,278.44
	Cooking Gear	30,838.38
	Cooking Gear	40,776.32
	Tents	61,075.08
	Sleeping Bags	49,704.2
	Sleeping Bags	22,737.78
	Packs	19,446.75
	Lanterns	6,625.92

The report displays separate rows for revenue generated by individual sales of each product type.


9. Close **IBM Cognos Viewer**.

---

In Step 7, do not click on the Bottom navigation button (this report returns a large amount of data and it will take a considerable amount of time to render the last page), also the order may vary as there has been no sorting done.

## Task 2. Apply a detail filter before auto aggregation and examine the effects

You want this report to include only data from individual orders of each product type that generated more than \$100,000 in revenue. You will create a detail filter and apply it before auto aggregation.

1. On the **Explorer** bar, point to **Page Explorer**, and then click **Page1**.
2. On the toolbar, click **Filters**, click **Edit Filters**, and then ensure the **Detail Filters** tab is selected.
3. Click **Add**, then click **Advanced**, and then **OK**.
4. In the **Available Components** pane, click the **Data Items** tab , drag the **Revenue** data item to the **Expression Definition** pane, and then type **>100000**
5. In the **Detail Filter Expression** dialog box, click **Validate**, and then after the expression is validated without any errors, click **OK**.

In the Filters dialog box, notice that the Usage property is set to Required and the Application property is set to Before auto aggregation.

6. Click **OK** to close the dialog box.

7. On the toolbar, click **Run Report**.

A section of the results appear as follows:

Product line	Product type	Revenue
Camping Equipment	Tents	172,480.58
	Tents	114,969.48
	Tents	111,038.25
	Tents	114,829.8

The report now displays only data for individual sales of product types that generated more than \$100,000 in revenue.

8. In the report, click **Bottom**.

Notice that the total revenue generated by product type orders of over \$100,000 is \$496,713,003.20.

9. Close **IBM Cognos Viewer**.

10. Point to **Query Explorer**, click **Query1**, and then notice that the filter we created appears in the **Detail Filters** pane.

11. In the **Detail Filters** pane, click **[Revenue]>100000**.

In the Properties pane, notice that the properties you specified for the filter in the report layout display in this pane:

- The Expression property displays the expression you created for this filter
- The Usage property is set to Required
- The Application property is set to Before Auto Aggregation

**INTERACTION - Toolbar Emoticons > Yes/No::** With the Auto Group & Summarize property set to No, does it matter whether we apply the detail filter before or after auto aggregation?

Answer: No, at this point since the query is retrieving each individual order (which means no auto aggregation is taking place) we would achieve the same result whether we set the filter to apply before or after auto aggregation. However, we will set this filter to apply before auto aggregation so we can compare our results later in this task when we set the Auto Group & Summarize property back to Yes.

### Task 3. Specify for the query to group and summarize data.

You want to see only one row for sales of each product type, so you will set the Auto Group & Summarize property for the query back to **Yes**.

1. On the toolbar, click **Up**, and then in the work area, click **Query1**.
2. In the **Properties** pane, click the **Auto Group & Summarize** cell, in the list, click **Yes**.
3. On the toolbar click **Run Report**.

The results appear as follows:

Product line	Product type	Revenue
Camping Equipment	Cooking Gear	1,863,445.82
	Packs	52,076,711.17
	Sleeping Bags	21,034,472.39
	Tents	282,028,081.98
<b>Camping Equipment - Total</b>		<b>357,002,711.36</b>
Golf Equipment	Irons	41,032,759.96
	Putters	1,184,967.25
	Woods	87,453,875.01
<b>Golf Equipment - Total</b>		<b>129,671,602.22</b>
Mountaineering Equipment	Rope	5,419,924.95
	Safety	932,767
	Tools	2,307,284
<b>Mountaineering Equipment - Total</b>		<b>8,659,975.95</b>
Personal Accessories	Knives	305,646.3
	Navigation	1,073,067.37
<b>Personal Accessories - Total</b>		<b>1,378,713.67</b>
<b>Overall - Total</b>		<b>496,713,003.2</b>

There is now only one row for each product type because the query will group and summarize the data at the lowest level of detail.

Notice that the revenue generated by Cooking Gear is \$1,863,445.82. When you ran this report without the filter in Task 1, the revenue generated by Cooking Gear was \$272,835,984.18. The value is different because it no longer includes individual orders that generated less than one hundred thousand dollars in revenue.

The total revenue generated by all product lines is \$496,713,003.20, which is the same as when you ran the report in Task 2 with the Auto Group & Summarize property for the query set to No.

Since you specified that the filter was to be applied before the query will group and summarize retrieved data, the filter will exclude the same data regardless of whether the query retrieves summarized or unsummarized data.

4. Close **IBM Cognos Viewer**.

#### **Task 4. Apply a detail filter after auto aggregation and observe the effects.**

You want the report to display only product types for which the total revenue by all sales is greater than ten million dollars. To achieve this, you will create a detail filter and apply it after auto aggregation.

1. Point to **Page Explorer**, click **Page1**.
2. On the toolbar, click **Filters**, click **Edit Filters**, click **Add**, click **Advanced**, and then **OK**.
3. In the **Available Components** pane, click the **Data Items** tab.
4. Drag the **Revenue** data item to the **Expression Definition** pane, and then at the end of the expression, type **> 10000000** (10 million).
5. In the **Detail Filter Expression** dialog box, click **Validate**, and then after the expression is validated without any errors, click **OK**.

In the Filters dialog box, in the Usage area, notice that the filter is set to Required.

6. In the **Application** area, select **After auto aggregation**, and then click **OK**.
7. On the toolbar, click **Run Report**.

The results appear as follows:

Product line	Product type	Revenue
Camping Equipment	Packs	52,076,711.17
	Sleeping Bags	21,034,472.39
	Tents	282,028,081.98
<b>Camping Equipment - Total</b>		<b>355,139,265.54</b>
Golf Equipment	Irons	41,032,759.96
	Woods	87,453,875.01
<b>Golf Equipment - Total</b>		<b>128,486,634.97</b>
<b>Overall - Total</b>		<b>483,625,900.51</b>

Only the five product types that generated total revenue greater than ten million display in the report.

8. Close **IBM Cognos Viewer**.

You decide you want to include product types in the report even if the aggregated revenue generated by all sales of the product type is less than ten million dollars. However, in case you want to use this filter in the future, you will disable this filter instead of deleting it.

9. On the toolbar, click **Filters**, click **Edit Filters**, click **[Revenue]>10000000**, and then in the **Usage** area, click **Disabled**.
10. Click **OK** to close the dialog box.

11. On the toolbar, click **Run Report**.

The results appear as follows:

Product line	Product type	Revenue
Camping Equipment	Cooking Gear	1,863,445.82
	Packs	52,076,711.17
	Sleeping Bags	21,034,472.39
	Tents	282,028,081.98
<b>Camping Equipment - Total</b>		<b>357,002,711.36</b>
Golf Equipment	Irons	41,032,759.96
	Putters	1,184,967.25
	Woods	87,453,875.01
<b>Golf Equipment - Total</b>		<b>129,671,602.22</b>
Mountaineering Equipment	Rope	5,419,924.95
	Safety	932,767
	Tools	2,307,284
<b>Mountaineering Equipment - Total</b>		<b>8,659,975.95</b>
Personal Accessories	Knives	305,646.3
	Navigation	1,073,067.37
<b>Personal Accessories - Total</b>		<b>1,378,713.67</b>
<b>Overall - Total</b>		<b>496,713,003.2</b>

All product types that generated over \$100,000 in revenue in at least one order again appear in the report, which means the second filter you added is no longer applied to the report.

12. Close **IBM Cognos Viewer**, point to **Query Explorer**, and then click **Query1**.

Notice that the [Revenue]>10000000 filter still appears in the query even though you disabled it in the report layout.

13. In the **Detail Filters** pane, click **[Revenue]>10000000**.

In the Properties pane, notice that, as we specified, the Usage property for the filter is set to Disabled.

Leave Report Studio open for the next demo.

**Results:**

**You created a report that displayed the total revenue produced by top performing products. You applied detail filters to the report so that only products producing a certain amount of revenue were displayed. You disabled a filter and viewed the effects.**



## Filter Your Data with Summary Filters

- Create a summary filter to filter your grouped data on summary values.

Product line	Product type	Revenue
Camping Equipment	Cooking Gear	272,835,984.18
	Lanterns	126,925,660.64
	Packs	351,880,402.84
	Sleeping Bags	309,172,888.35
	Tents	528,221,728.02
Camping Equipment - Total		1,589,036,664.03
Personal Accessories	Binoculars	130,834,653.2
	Eyewear	867,125,198.48
	Knives	153,420,439.59
	Navigation	207,490,641.92
	Watches	526,802,374.59
Personal Accessories - Total		1,885,673,307.78
Overall - Total		3,474,709,971.81

**Summary filter to focus on Product lines that generated total revenues greater than \$1,000,000,000**

**Cognos.**  
software

© 2010 IBM Corporation

To add a filter that will apply to groups in the report, click the Summary Filters tab.

When you use a summary filter, you can specify the group on which you want to filter.

When you combine detail and summary filters, be aware that the detail filter will affect the summarized numbers that you are filtering on. Be sure to check that the results are as expected.

Workshop 1 combines detail and summary filters and discusses the resulting impact.

## Demo 3: Apply a Summary Filter to a Report

### Purpose:

You need to create a report that focuses on product lines that have generated revenues greater than \$1 billion. You will use a summary filter to focus on this data.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	List
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

### Task 1. Open the report and apply a summary filter.

1. In **Report Studio**, click **File**, **Open**, and navigate to **Public Folders\B5158\Module 04\_Focus Reports Using Filters\Demo 3 Start**, and then click **Open**.
2. From the toolbar, click **Filters**, and then click **Edit Filters**.
3. Click the **Summary Filters** tab, click **Add**, click **Advanced** and then **OK**.
4. From the **Data Item** tab, drag **Total(Revenue)** to the **Expression Definition** pane.
5. Type **> 1000000000** (1 billion).
6. Validate the expression, and then click **OK**.
7. Beside **Scope**, click the **ellipsis**, select the **Product line** check box, and then click **OK** twice to close both dialog boxes.

8. On the toolbar, click **Run Report**.

The results appear as follows:

Product line	Product type	Revenue
Camping Equipment	Cooking Gear	272,835,984.18
	Lanterns	126,925,660.64
	Packs	351,880,402.84
	Sleeping Bags	309,172,888.35
	Tents	528,221,728.02
<b>Camping Equipment - Total</b>		<b>1,589,036,664.03</b>
Personal Accessories	Binoculars	130,834,653.2
	Eyewear	867,125,198.48
	Knives	153,420,439.59
	Navigation	207,490,641.92
	Watches	526,802,374.59
<b>Personal Accessories - Total</b>		<b>1,885,673,307.78</b>
<b>Overall - Total</b>		<b>3,474,709,971.81</b>

Only two product lines generated total revenues greater than \$1,000,000,000, Camping Equipment and Personal Accessories.

9. Close **IBM Cognos Viewer**.
10. Point to **Query Explorer**, and then click **Query1**.

The summary filter you added appears in the Summary Filters pane.

11. In the **Summary Filters** pane, click **[Total(Revenue)]>1000000000**.

Notice that in the Properties pane the Scope property for this filter is set to Product line.

Leave Report Studio open for the workshop.

## Results:

**You created a report that used a summary filter to focus on product lines that generated total revenues greater than \$1 billion.**

**INTERACTION - Microphone:** Summary filters are applied to grouped data that has a group total. Lead the participants in a discussion to have them conclude that in order for a summary filter to be applied:

1. What must exist in a report before a summary filter can be applied? A - Grouping applied.
2. What is the Scope of the summary filter? The data item whose summary value is filtered

## Apply Pre-defined Source Filters

- Save time and effort by applying filters published with your source package rather than creating your own.



**Pre-defined filter  
to show only  
data for 2006,  
included in the  
package.**

**Cognos.  
software**

© 2010 IBM Corporation

## Summary

- At the end of this course, you should be able to:
  - create filters to narrow the focus of reports
  - examine detail and summary filters
  - determine when to apply filters on aggregate data

**INTERACTION - Check Sticker:** Check off each Objective as it is reviewed

## **Workshop 1: Create a Report Focused on the 2006 Sales for Each Country and Order Method.**

You need to create a report that displays revenue for 2006 by product line and product type. The report must have the ability to show the product types that generated revenue larger than \$100 million and product lines that generated revenue larger than \$400 million

To accomplish this:

- Navigate to Public Folders\B5158\Module 04\_Focus Reports Using Filters.
- Open Workshop 1 Start.
- Add a detail filter (After auto-aggregation) for revenue greater than \$100 million.
- Add a summary filter on Product line that generated total revenue greater than \$400 million.

For more detailed information outlined as tasks, see the Task Table section.

For the final query results, see the Workshop Results section that follows the Task Table section.

## Workshop 1: Task Table

<b>Task 1: Open the report and observe the results.</b>	
<b>Where to Work</b>	<b>Hints</b>
Toolbar File > Open	<ul style="list-style-type: none"> <li>Navigate to Public Folders\B5158\Module 04_Focus Reports Using Filters.</li> </ul>
	<ul style="list-style-type: none"> <li>Open Workshop 1 Start.</li> </ul>
<b>Task 2: Apply a detail filter on Revenue.</b>	
<b>Where to Work</b>	<b>Hints</b>
Toolbar\ Filter \ Expression Editor	<ul style="list-style-type: none"> <li>Revenue&gt;\$100 million</li> </ul>
	<ul style="list-style-type: none"> <li>After auto-aggregation</li> </ul>
<b>Task 3: Apply a summary filter on Total(Revenue).</b>	
<b>Where to Work</b>	<b>Hints</b>
Toolbar\ Filter \ Expression Editor	<ul style="list-style-type: none"> <li>Total(Revenue)&gt;\$400 million</li> </ul>
	<ul style="list-style-type: none"> <li>Scope: Product line</li> </ul>

If you need more information to complete a task, see the Step-by-Step instructions at the end of the Workshop.

## Workshop 1: Workshop Results

After running the report in Task 1 a section of the report appears as follows:

Product line	Product type	Revenue
Camping Equipment	Cooking Gear	272,835,984.18
	Lanterns	126,925,660.64
	Packs	351,880,402.84
	Sleeping Bags	309,172,888.35
	Tents	528,221,728.02
Camping Equipment - Total		1,589,036,664.03
Golf Equipment	Golf Accessories	51,514,343.88
	Irons	254,814,337.99
	Putters	106,184,271.37
	Woods	313,898,414.65
Golf Equipment - Total		726,411,367.89
Mountaineering Equipment	Climbing Accessories	81,096,582.48
	Rope	114,426,644.73
	Safety	83,236,883.98
	Tools	130,900,021.71
Mountaineering Equipment - Total		409,660,132.9



## Workshop 1: Workshop Results

After adding the detail filter in Task 2 and running the report, the report appears as follows:

Product line	Product type	Revenue
Camping Equipment	Cooking Gear	272,835,984.18
	Lanterns	126,925,660.64
	Packs	351,880,402.84
	Sleeping Bags	309,172,888.35
	Tents	528,221,728.02
Camping Equipment - Total		1,589,036,664.03
Golf Equipment	Irons	254,814,337.99
	Putters	106,184,271.37
	Woods	313,898,414.65
Golf Equipment - Total		674,897,024.01
Mountaineering Equipment	Rope	114,426,644.73
	Tools	130,900,021.71
Mountaineering Equipment - Total		245,326,666.44
Personal Accessories	Binoculars	130,834,653.2
	Eyewear	867,125,198.48
	Knives	153,420,439.59
	Navigation	207,490,641.92
	Watches	526,802,374.59
Personal Accessories - Total		1,885,673,307.78
Overall - Total		4,394,933,662.26

## Workshop 1: Workshop Results

After adding the summary filter in Task 3 and running the report, the report appears as follows:

Product line	Product type	Revenue
Camping Equipment	Cooking Gear	272,835,984.18
	Lanterns	126,925,660.64
	Packs	351,880,402.84
	Sleeping Bags	309,172,888.35
	Tents	528,221,728.02
Camping Equipment - Total		1,589,036,664.03
Golf Equipment	Irons	254,814,337.99
	Putters	106,184,271.37
	Woods	313,898,414.65
Golf Equipment - Total		674,897,024.01
Personal Accessories	Binoculars	130,834,653.2
	Eyewear	867,125,198.48
	Knives	153,420,439.59
	Navigation	207,490,641.92
	Watches	526,802,374.59
Personal Accessories - Total		1,885,673,307.78
Overall - Total		4,149,606,995.82

## Workshop 1: Step-by-Step Instructions

Server: localhost  
User/Password: brettonf/Education1!  
Studio: Report Studio  
Package: Go Data Warehouse (query)  
Report Type: List  
Folder: Sales and Marketing (query)  
Namespace: Sales (query)

### Task 1. Open the report and observe the results.

1. In **Report Studio**, from the **File** menu, click **Open**, and navigate to **Public Folders\B5158\Module 04\_Focus Reports Using Filters\Workshop 1 Start**, and then click **Open**.
2. On the toolbar, click **Run Report**, and then observe the results for Product line Revenue totals.
3. Close **IBM Cognos Viewer**.

### Task 2. Apply a detail filter on Revenue.

1. On the toolbar, click **Filters**, click **Edit Filters**, click **Add**, click **Advanced**, and then **OK**.
2. In the **Available Components** pane, click the **Data Items** tab, and then double-click **Revenue**.
3. At the end of the expression, type **>100000000** (100 million).
4. Click **Validate** to check the expression for errors.
5. Click **OK**, and then select **After auto aggregation**.

6. Click **OK**, and then on the toolbar, click **Run Report**.

Observe that Product line total revenues have changed and that Product types that generated less than \$100 million are not included in these totals. Outdoor Protection is no longer included in the report because all the Product types that belong to it generated less than \$100 million.

7. Close **IBM Cognos Viewer**.

### **Task 3. Apply a summary filter on Total(Revenue).**

1. On the toolbar, click **Filters**, and then click **Edit Filters**.
2. Click the **Summary Filters** tab, click **Add**, then click **Advanced**, and then **OK**.
3. In the **Available Components** pane, double-click **Total(Revenue)** to add it to the expression, and then type **>400000000** (400 million).
4. Click **Validate**, and then click **OK**.
5. Beside **Scope**, click the **ellipsis**, select the **Product line** check box, and then click **OK** twice to close both boxes.
6. On the toolbar, click **Run Report**.

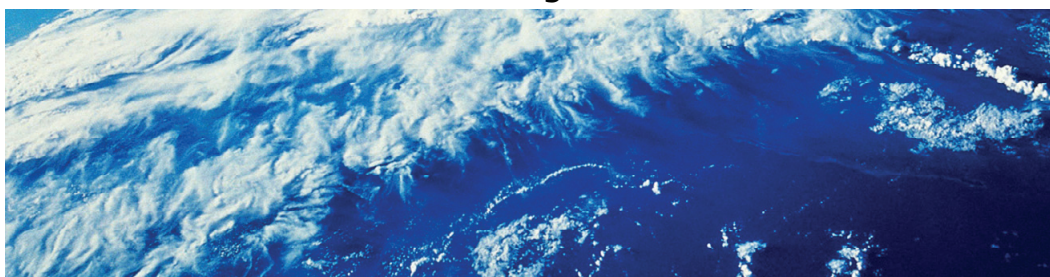
You have applied the summary filter, but the detail filter is still enabled. Observe that only Camping Equipment, Golf Equipment, and Personal Accessories appear in the report because their Total Revenue generated was greater than \$400 million. Although Mountaineering Equipment had a total Revenue of \$409 million as seen in Task 1, when we applied the detail filter, its total Revenue was reduced to \$245 million. Therefore, Mountaineering Equipment is filtered out of the report because the detail and summary filters were applied together.

7. Close **IBM Cognos Viewer**, and then close **Report Studio** without saving changes.



# Create Crosstab Reports

IBM Cognos BI



**Business Analytics**

*Confidential*

© 2010 IBM Corporation



## Objectives

- At the end of this course, you should be able to:
  - format and sort crosstab reports
  - create complex crosstabs using drag and drop functionality
  - create crosstabs using unrelated data items

---

If you intend to teach this module, students should be familiar with:

- Report Studio Basics

Suggested module to reference:

- Introduction to the Reporting Application

**INTERACTION - Star Sticker:** Use the star sticker to highlight each objective as it is introduced.

## Create a Crosstab Report

- Add data items to rows and columns, and measures to the body of the crosstab.

**Data Items**

Revenue	2007	2006
Golf Equipment	\$174,740,819.29	\$230,110,270.55
Camping Equipment	\$352,910,329.97	\$500,382,422.83

**Measures**

You can create a nested crosstab by adding more than one item to rows or columns, and you can report on more than one measure.

Any data item that can be aggregated can be added to the body of the crosstab as the measure. The measure defines what data is being reported on, such as revenue, quantity, or profit margin.



## Add Measure to Crosstab Reports

- You can add measures to either the row or column edges of a crosstab report.
- You can add a default measure that is used in cells where the measure is not defined on the row or column edge.

### Default measure

### Defined measure for crosstab node

Revenue	<#Quarter#>	<#Order method#>	
		<#Quantity#>	<#Quantity#>
<#Product line#>	<#1234#>	<#1234#>	<#1234#>
<#Product line#>	<#1234#>	<#1234#>	<#1234#>

Revenue values

Quantity values

Cognos.  
software

© 2010 IBM Corporation

The crosstab cells contain the measure values. Default measure is a property of the crosstab object. If the measures of the crosstab cannot be determined by what is being rendered on the edges, then the default measure will be rendered.

By adding items as peers of other items, report authors create union queries.

Crosstab edge cells have four drop zones: one on each side, one at the top of the cell, and one at the bottom of the cell.

Use the crosstab drop zones to add items as parents, peers, or children of other items in the crosstab.

Using crosstab drop zones, you can quickly create union crosstabs using drag-and-drop functionality.

**INTERACTION - Whiteboard:** List which features apply to crosstabs only and which to lists only. For example, with crosstabs, you can swap rows and columns. List Header/Footer is not available with a crosstab. You can pivot a list to a crosstab, but not vice-versa.

## Demo 1: Create a Simple Crosstab Report

### Purpose:

You want to create and format a report to show revenue generated by order method for each year. You want to see yearly trends in sales for each order method.

Server: localhost  
User/Password: brettanf/Education1!  
Studio: Report Studio  
Package: Go Data Warehouse (query)  
Report Type: Crosstab  
Folder: Sales and Marketing (query)  
Namespace: Sales (query)

### Task 1. Create a crosstab report.

1. From the **Insertable Objects** pane, on the **Source** tab, add the following query items to the crosstab:
  - **Products** → **Product line** to **Rows**
  - **Order method** → **Order method type** to **Columns**
  - **Sales fact** → **Revenue** to **Measures**

- On the toolbar, click **Run Report**.

The results appear as follows:

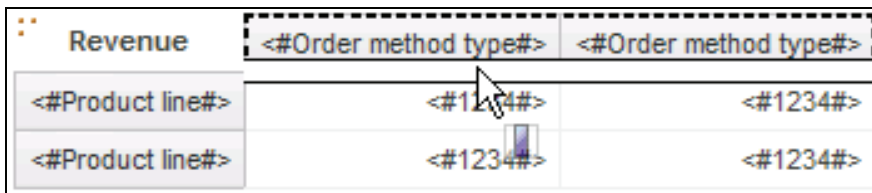
Revenue	E-mail	Fax	Mail	Sales visit	Special	Telephone	Web
Camping Equipment	75,899,094.63	23,054,398.48	21,348,644.09	168,611,961.87	12,388,989.44	153,894,892.13	1,133,838,683.39
Golf Equipment	47,933,933.16	15,241,303.27	12,693,287.48	39,240,918.73	4,964,762.97	78,730,112.65	527,607,049.63
Mountaineering Equipment	7,476,451.96	11,848,370.08	3,531,658.66	44,616,626.64	3,674,008.11	22,910,827.4	315,602,190.05
Outdoor Protection	5,882,477.87	1,966,484.72	2,098,391.71	10,029,884.31	1,136,931.23	11,928,314.52	42,951,811.89
Personal Accessories	42,651,086.54	17,962,985.46	6,419,357.03	47,695,442.45	5,186,628.5	73,521,634.36	1,692,236,173.44

Your report shows the revenue generated for each product line by each order method. You want to add currency to the revenue items and add years to the report to compare revenue generated in each year.

- Close **IBM Cognos Viewer**.

## Task 2. Add Year to the crosstab report and sort on Year.

- Expand the **Time** query subject, and then drag **Year** to **Columns** under **Order method type**.



Revenue	<#Order method type#>	<#Order method type#>
<#Product line#>	<#1234#>	<#1234#>
<#Product line#>	<#1234#>	<#1234#>

- Click the **Year** column title.
- From the toolbar, click **Sort**, and then click **Ascending**.
- On the toolbar, click **Run Report**.

Your report is very wide. When consumers are viewing the report, they will always have to scroll horizontally. You can swap the rows and columns to make it easier for consumers to read the report.

- Close **IBM Cognos Viewer**.

6. On the toolbar, click **Swap Rows and Columns** .
7. On the toolbar, click **Run Report**.

The results appear as follows:

Revenue		Camping Equipment	Golf Equipment	Outdoor Protection	Personal Accessories	Mountaineering Equipment
E-mail	2004	39,124,634.73	29,322,537.92	4,135,915.35	22,819,708.21	
	2005	21,291,005.31	8,851,232.61	1,406,531.47	10,253,053.91	2,517,063.13
	2006	10,612,304.02	5,401,733.78	289,343.01	5,568,561.15	1,829,100.61
	2007	4,871,150.57	4,358,428.85	50,688.04	4,009,763.27	3,130,288.22
Fax	2004	9,634,763.39	6,255,930.08	1,435,512.2	11,313,266.47	
	2005	6,228,274.27	3,539,563.59	385,329.2	3,613,228.75	6,129,791.95
	2006	5,226,451.57	2,408,222.14	123,028.48	2,149,810.49	3,538,047.25
	2007	1,964,909.25	3,037,587.46	22,614.84	886,679.75	2,180,530.88
Mail	2004	10,015,621.15	8,396,407.78	1,402,530.23	2,952,291.35	
	2005	8,846,759.96	2,355,735	594,355.43	1,719,745.82	2,497,183.28
	2006	2,482,266.26	1,941,144.7	101,506.05	1,346,338.05	1,034,475.38
	2007	3,996.72			400,981.81	
Sales visit	2004	62,069,990.87	12,046,323.14	6,455,901.27	20,500,505.82	
	2005	43,352,874.97	7,720,215.67	2,672,442.62	9,340,973.91	16,635,017.2
	2006	37,660,178.39	10,562,039.68	746,934.8	10,150,877.88	14,798,621.63
	2007	25,528,917.64	8,912,340.24	154,605.62	7,703,084.84	13,182,987.81
Special	2004	5,844,211.12	3,705,129.72	858,775.41	3,497,802.5	
	2005	5,012,986.47	1,259,633.25	267,356.86	1,390,381.2	2,838,822.56
	2006	332,095.44		10,798.96	146,195.56	517,010.05
	2007	1,199,696.41			152,249.24	318,175.5

Your report shows that Web sales have been increasing while Telephone sales have been decreasing. (The figures for 2007 are not for a complete year.)

8. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next demo.

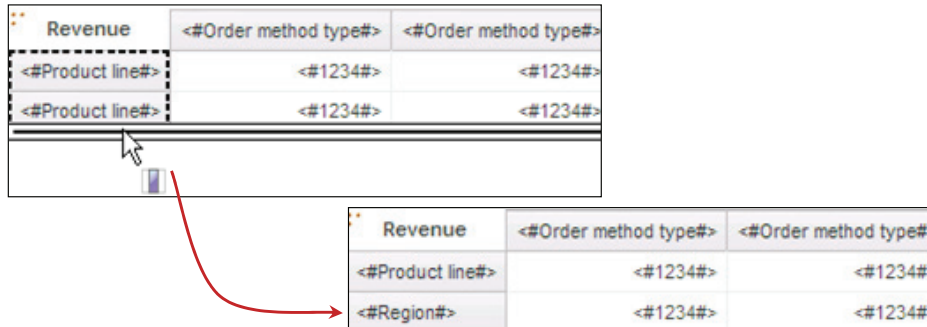
## Results:

**You created and formatted a report to show revenue generated by order method for each year. The report displayed yearly trends in sales for each order method.**

# Create Complex Crosstab Reports

- Crosstab drop zones let you create a wide variety of crosstab layouts to meet your business requirements.

## Add Region as a peer of Product line



Revenue	<#Order method type#>	<#Order method type#>
<#Product line#>	<#1234#>	<#1234#>
<#Product line#>	<#1234#>	<#1234#>

Revenue	<#Order method type#>	<#Order method type#>
<#Product line#>	<#1234#>	<#1234#>
<#Region#>	<#1234#>	<#1234#>

**Cognos.**  
software

© 2010 IBM Corporation


To add a second item as a peer below an existing item, drop the new item below the bottom instance of the item on the row edge. To add a second item as a peer above the existing item, drop the new item above either instance of the item on the row edge.

To add a second item as a peer to the right of the existing item, drop the new item to the right of the far right instance of the item on the column edge. To add a second item as a peer to the left of the existing item, drop the new item to the left of either instance of the item on the column edge.

## Create Crosstab Nodes and Crosstab Node Members

- When you add items to crosstabs, you create crosstab nodes and crosstab node members.

**This crosstab node contains two crosstab node members: Region and City.**



Revenue		<#Order method type#>		<#Order method type#>		<#Order method type#>	
		<#Country#>	Total	Total	<#Country#>	Total	Total
Average(Product line)		<#1234#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>
<#Region#>	<#City#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>
	<#City#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>
<#Product line#>		<#1234#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>
Total		<#1234#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>

The row and column edges of a crosstab are composed of sets of crosstab nodes. A crosstab node contains one crosstab node member, as well as any crosstab node members nested under it.

Each crosstab node member refers to a data item.

Crosstab nodes and crosstab node members let you easily create and modify complex crosstabs.

**INTERACTION - Shapes > Rectangle:** Call on a participant to identify other nodes and node members. They can use the rectangles tool to identify these items

## Demo 2: Create Complex Crosstab Reports

### Purpose:

Create a crosstab report for users to analyze the revenue generated and the quantity sold for different order methods. You will add data to examine the revenue generated by different order methods in the countries where your products are sold. You will add order year data to the report and explore the flexibility of layout options using the crosstab drop zones.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	Crosstab
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

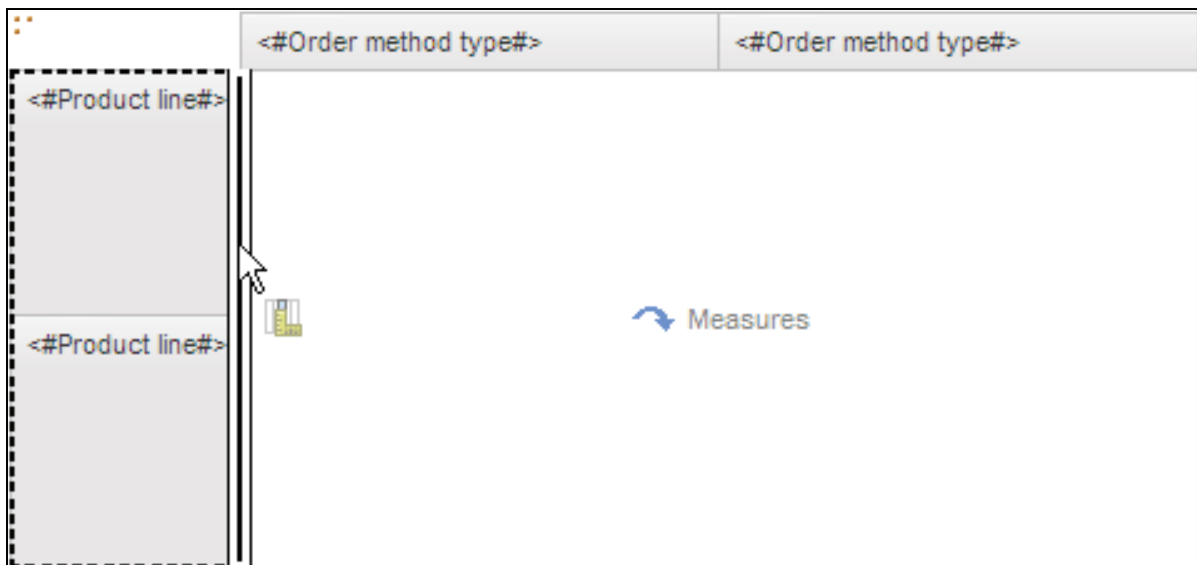
### Task 1. Create a crosstab report.

1. From the **Insertable Objects** pane, on the **Source** tab, add the following query items to the crosstab:
  - **Products** → **Product line** to **Rows**
  - **Order method** → **Order method type** to **Columns**

## Task 2. Nest on a crosstab edge.

You want to examine the revenue generated and quantity sold by each order method for each product line. To do this, you will nest both of these measures in the rows of the report.

1. Expand **Sales fact**, and drag **Revenue** to the **Rows** area as a child of **Product line**.



Revenue is nested in the Product line rows of the crosstab.

The results appear as follows:


		<#Order method type#>	<#Order method type#>
<#Product line#>	<#Revenue#>	<#1234#>	<#1234#>
	<#Revenue#>	<#1234#>	<#1234#>
<#Product line#>	<#Revenue#>	<#1234#>	<#1234#>
	<#Revenue#>	<#1234#>	<#1234#>

You also want to nest Quantity in the Product line rows.



2. Drag **Quantity** to the **Rows** area as a peer of **Revenue**.

		<#Order method type#>	<#Order method type#>
<#Product line#>	<#Revenue#>	<#1234#>	<#1234#>
	<#Revenue#>	<#1234#>	<#1234#>
<#Product line#>	<#Revenue#>	<#1234#>	<#1234#>
	<#Revenue#>	<#1234#>	<#1234#>



Both Revenue and Quantity are now nested in the Product line rows of the crosstab.

The results appear as follows:

		<#Order method type#>	<#Order method type#>
<#Product line#>	<#Revenue#>	<#1234#>	<#1234#>
	<#Quantity#>	<#1234#>	<#1234#>
<#Product line#>	<#Revenue#>	<#1234#>	<#1234#>
	<#Quantity#>	<#1234#>	<#1234#>

3. On the toolbar, click **Run Report**.

A section of the results appear as follows:

		E-mail	Fax	Mail
Camping Equipment	Revenue	75,899,094.63	23,054,398.48	21,348,644.09
	Quantity	1,413,084	413,958	348,058
Golf Equipment	Revenue	47,933,933.16	15,241,303.27	12,693,287.48
	Quantity	333,300	102,651	80,432

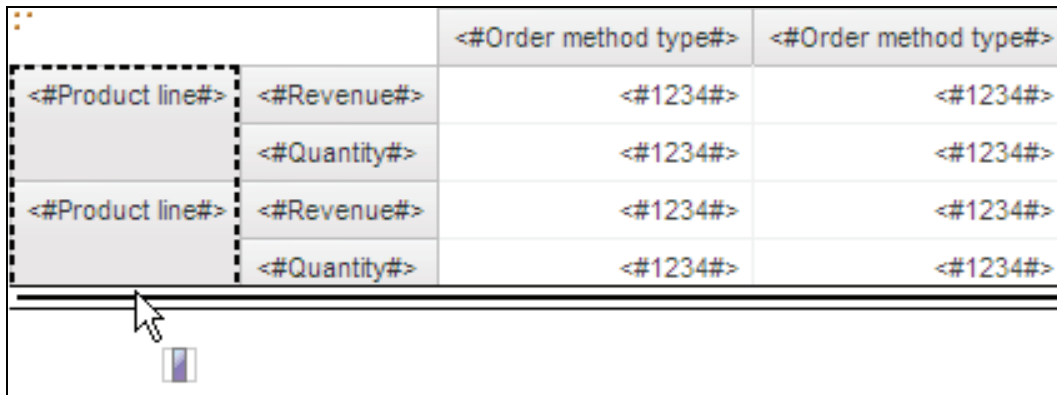
You can analyze the revenue generated and the quantity sold by each order method for each product line.

4. Close **IBM Cognos Viewer**.

### Task 3. Add items as peers on a crosstab edge.

You are also interested in how revenue generated by different order methods varies from country to country.

1. In the **Insertable Objects** pane, on the **Source** tab, expand **Employee by region**, and then drag **Country** to the **Rows** area as a peer of **Product line**.



		<#Order method type#>	<#Order method type#>
<#Product line#>	<#Revenue#>	<#1234#>	<#1234#>
	<#Quantity#>	<#1234#>	<#1234#>
<#Product line#>	<#Revenue#>	<#1234#>	<#1234#>
	<#Quantity#>	<#1234#>	<#1234#>

Both Product line and Country now appear on the row edge of the crosstab.

The results appear as follows:

		<#Order method type#>	<#Order method type#>
<#Product line#>	<#Revenue#>	<#1234#>	<#1234#>
	<#Quantity#>	<#1234#>	<#1234#>
<#Country#>		<#1234#>	<#1234#>

---

Explain to the participants that Country has no measure associated with it, since Revenue and Quantity are children of Product line only.

- In the **Insertable Objects** pane, click the **Data Items** tab, and then drag **Revenue** to the **Rows** area of the report as a child of **Country**.

The results appear as follows:

		<#Order method type#>	<#Order method type#>
<#Product line#>	<#Revenue#>	<#1234#>	<#1234#>
	<#Quantity#>	<#1234#>	<#1234#>
<#Country#>		<#1234#>	<#1234#>

Revenue is nested within the Country rows of the crosstab.

The results appear as follows:


		<#Order method type#>	<#Order method type#>
<#Product line#>	<#Revenue#>	<#1234#>	<#1234#>
	<#Quantity#>	<#1234#>	<#1234#>
<#Country#>	<#Revenue#>	<#1234#>	<#1234#>
	<#Revenue#>	<#1234#>	<#1234#>

- On the toolbar, click **Run Report**.

You can examine the revenue generated by each order method in different countries as well as the revenue generated and the quantity sold by each order method for each product line.

- Close **IBM Cognos Viewer**.

You now want to examine data for years and order methods. To do this, you will add Year to the column edge of the crosstab.

5. In the **Insertable Objects** pane, click the **Source** tab , expand **Time**, and then drag **Year** to the left of **Order method type** in the **Columns** area of the crosstab.

The results appear as follows:

		<#Order method type#>	<#Order method type#>
<#Product line#>	<#Revenue#>	<#1234#>	<#1234#>
	<#Quantity#>	<#1234#>	<#1234#>
<#Country#>	<#Revenue#>	<#1234#>	<#1234#>
	<#Revenue#>	<#1234#>	<#1234#>

Both Year and Order method appear on the column edge of the crosstab.

The results appear as follows:

		<#Year#>	<#Order method type#>
<#Product line#>	<#Revenue#>	<#1234#>	<#1234#>
	<#Quantity#>	<#1234#>	<#1234#>
<#Country#>	<#Revenue#>	<#1234#>	<#1234#>
	<#Revenue#>	<#1234#>	<#1234#>

6. Click the **Year** column header, click **Sort**, and then click **Ascending**.

7. On the toolbar, click **Run Report**.

A section of the results appear as follows:

		2004	2005	2006	2007	E-mail
Camping Equipment	Revenue	332,986,338.06	402,757,573.17	500,382,422.83	352,910,329.97	75,899,094.63
	Quantity	5,895,053	6,903,764	8,399,156	6,103,176	1,413,084
Outdoor Protection	Revenue	36,165,521.07	25,008,574.08	10,349,175.84	4,471,025.26	5,882,477.87
	Quantity	5,614,356	4,111,058	1,599,585	689,446	905,156
Personal Accessories	Revenue	391,647,093.61	456,323,355.9	594,009,408.42	443,693,449.85	42,651,086.54
	Quantity	7,572,339	8,567,357	10,706,015	8,061,994	791,905
Mountaineering Equipment	Revenue		107,099,659.94	161,039,823.26	141,520,649.7	7,476,451.96
	Quantity		2,644,713	3,700,262	3,555,116	199,214
Golf Equipment	Revenue	153,553,850.98	168,006,427.07	230,110,270.55	174,740,819.29	47,933,933.16
	Quantity	1,092,982	1,297,793	1,536,772	1,186,154	333,300
Australia	Revenue		19,270,852.15	38,968,802.62	29,323,674.25	600,979.72
Austria	Revenue	13,866,004.52	19,343,686.48	28,348,967.66	21,981,766.43	
Belgium	Revenue		21,554,248.84	27,345,821.17	19,822,994.69	
Brazil	Revenue	17,566,891.21	22,580,246.05	28,939,868.92	21,447,899.23	330,436.43

You can examine revenue generated and quantity sold for your product lines as well as by different order methods. You can also examine the revenue generated in different countries by different order methods. For example, you can see that no Mountaineering Equipment was sold in 2004.

8. Close **IBM Cognos Viewer**.

### Results:

**You created a report that displayed revenue generated and quantity sold by your product lines in different years and by different order methods. The report also displayed the revenue generated in different countries in different years and by different order methods. You could observe the flexibility provided by the many crosstab drop zones.**

## Format Crosstab Reports

- You can specify formatting for cells displaying data for a specific row or column edge item, such as Product line or Region.

Gross profit	2007
Personal Accessories	<b>186,535,159.07</b>
Asia Pacific	<i>118,203,277.67</i>

← **Bold, Blue**

← **Italic, Green**

**No formatting applied**

**Cognos.**  
software

© 2010 IBM Corporation

## Add Unrelated Items to Crosstabs Edges

- You can create discontinuous crosstabs that have unrelated data in the row and column edges.

Gross profit		Node		Node	
		2007	2006	Asia Pacific	
				Web	Sales visit
Camping Equipment		132,630,896.65	188,942,774.28	76,607,740.43	4,119,205.21
Mountaineering Equipment		56,718,814.19	64,233,527.4	27,637,142.47	1,184,152.17
Outdoor Protection		2,745,257.18	6,387,192.95	2,060,501.53	165,605.68
Personal Accessories		186,535,159.07	247,731,864.8	102,076,237.5	755,820.22
Golf Equipment		86,642,694.9	115,965,213.04	44,464,784.66	3,330,714.88
Outdoors Shop	1 for 1 Sports shop	484,120.49	728,163.87	1,212,284.36	
	Accapamento	701,788.7	1,100,243.6		
	AcquaVerde	1,178,508.6	1,185,922.36		
	Air frais	652,922.53	706,412.19		

Cognos.  
software

© 2010 IBM Corporation

Creating discontinuous crosstabs lets you present a wide variety of information in one report and customize the way it is displayed

If you want items on the edges of your crosstab to be discontinuous (contain different nested items), you can turn on the Create crosstab node option. This can be found under the Structure menu item.

If you want items on the edges of your crosstab to be related (contain the same nested items), you can turn off the Create crosstab node option.

## Demo 3: Present Unrelated Items in a Crosstab Using a Discontinuous Crosstab

### Purpose:

You are requested to create a report showing revenue and quantity for each product line, years and quarters. The report should show revenue and quantity data for each sales region. Since the report will have rows with unrelated data, you will create a discontinuous crosstab report. You will also format revenue fact cells and quantity fact cells to display in different colors.

Server: localhost  
 User/Password: brettonf/Education1!  
 Studio: Report Studio  
 Package: Go Data Warehouse (query)  
 Report Type: Crosstab  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Create a discontinuous crosstab report.

1. In the **Insertable Objects** pane, on the **Source** tab, add the following data items to the crosstab:
  - **Products** → **Product line** to **Rows**
  - **Employee by region** → **Branch region** to **Columns**



2. From **Time**, drag **Year** below **Product line** as a peer row.
3. From **Time**, drag **Quarter** to the right of **Year** as a nested row.

	<#Branch region#>	<#Branch region#>
<#Product line#>		
<#Year#>		

4. From the **Sales fact** query subject, drag **Revenue** under the **Branch region** column as a nested column.
5. From the **Sales fact** query subject, drag **Quantity** as a peer of **Revenue**, nested under the **Branch region** column.

		<#Branch region#>	<#Branch region#>	<#Branch region#>	<#Branch region#>
		<#Revenue#>	<#Revenue#>	<#Revenue#>	<#Revenue#>
<#Product line#>		<#1234#>	<#1234#>	<#1234#>	<#1234#>
<#Year#>	<#Quarter#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>
	<#Quarter#>	<#1234#>	<#1234#>	<#1234#>	<#1234#>

6. Click the **Branch region** column, click **Sort**, and then click **Ascending**.
7. Click **Product line**, click **Sort**, and then click **Ascending**.
8. Click **Year**, click **Sort**, and then click **Descending**.

## Task 2. Apply formatting to the crosstab fact cells.

1. On the column edge, right-click **Revenue**, and then click **Select Member Fact Cells**.
2. From the toolbar, click **Foreground Color**, and then click **Blue**.
3. On the column edge, right-click **Quantity**, and then click **Select Member Fact Cells**.
4. From the toolbar, click **Foreground Color**, and then click **Red**.
5. On the toolbar, click **Run Report**.

A section of the results appear as follows:

		Americas		Asia Pacific		Central Europe	
		Revenue	Quantity	Revenue	Quantity	Revenue	Quantity
Camping Equipment		481,445,781.04	8,101,682	421,639,391.62	7,366,131	343,645,848.36	5,904,428
Golf Equipment		217,262,995.22	1,544,411	193,677,873.68	1,338,406	153,632,833.39	1,071,235
Mountaineering Equipment		123,127,397.88	2,948,533	107,505,775.01	2,571,299	88,051,532.89	2,146,207
Outdoor Protection		23,002,647.68	3,619,457	19,716,018.32	3,114,960	17,488,870.77	2,800,923
Personal Accessories		132,249,058.98	2,730,299	116,715,219.51	2,397,747	1,540,675,699.15	27,771,811
2007	Q1	99,668,909.86	1,752,555	87,323,799.66	1,558,240	208,125,905.83	3,706,144
	Q2	98,828,777.21	1,699,239	86,438,349.68	1,504,142	218,251,618.31	3,830,700
	Q3	35,108,096.67	590,699	30,802,677.33	520,678	73,485,747.91	1,296,244
2006	Q1	72,919,470.22	1,269,166	61,699,029.76	1,101,646	151,653,156.66	2,677,762
	Q2	82,814,841.14	1,393,193	75,480,083.64	1,308,247	175,010,376.46	3,051,989
	Q3	79,628,210.68	1,319,021	71,904,554.16	1,197,936	168,066,493.55	2,948,132
	Q4	76,675,470.87	1,327,024	66,608,292.34	1,170,508	180,844,360.45	3,066,429

6. Close **IBM Cognos Viewer**.

Leave report Studio open for the next workshop.

**Results:**

**You created a report showing revenue and quantity for product lines and for each year and each quarter. The report shows revenue and quantity data for each sales region. The report has rows with product line data which is unrelated to the data in the year and quarter rows. The data is displayed in a discontinuous crosstab report and revenue and quantity fact cells are formatted in different colors.**

## Summary

- At the end of this course, you should be able to:
  - format and sort crosstab reports
  - create complex crosstabs using drag and drop functionality
  - create crosstabs using unrelated data items

**INTERACTION - Check Sticker:** Check mark each objective as it is summarized

## Workshop 1: Sort and Format a Crosstab Report

You want to create a crosstab report with data in which users can easily understand the sort order and can distinguish between data based on appearance. The report should show revenue for each year of operation for each Product type within each Product line. In the same crosstab, you want to display Revenue for each Retailer type.

To accomplish this:

- Create a crosstab report using the GO Data Warehouse (query) package.
- Add the following items:
  - Product line to the Rows
  - Year to the Columns
  - Revenue to the Measures
- Sort Year as ascending and Product line as ascending.
- Add Retailer type as a peer of Product line.
- Format Product line data with a Blue foreground color.
- Sort Retailer type as ascending based on Revenue.
- Aggregate Year by Total.
- Add Product type as a child of Product line and aggregate by Total.

For more detailed information outlined as tasks, see the Task Table section.

For the final query results, see the Workshop Results section that follows the Task Table section.

## Workshop 1: Task Table

<b>Task 1: Create and sort a crosstab report.</b>	
<b>Where to Work</b>	<b>Hints</b>
GO Data Warehouse (query) package	<ul style="list-style-type: none"> <li>• Create a crosstab report.</li> </ul>
Insertable Objects pane Sales and Marketing (query) folder, Sales (query) namespace	<ul style="list-style-type: none"> <li>• Add Product line as Rows, Year as Columns, Revenue as Measures.</li> </ul>
Toolbar	<ul style="list-style-type: none"> <li>• Sort: Year ascending.</li> <li>• Sort: Product line ascending.</li> </ul>
<b>Task 2: Format the crosstab and perform advanced sorting.</b>	
<b>Where to Work</b>	<b>Hints</b>
Insertable Objects pane	<ul style="list-style-type: none"> <li>• Add Retailer type as a peer of Product line on Rows.</li> </ul>
Work area	<ul style="list-style-type: none"> <li>• Product line: blue foreground color.</li> </ul>
Properties pane	<ul style="list-style-type: none"> <li>• Sort: Retailer type in ascending order based on Revenue.</li> <li>• Aggregate: Year as Total.</li> </ul>

<b>Task 3: Add aggregate data to the crosstab.</b>	
<b>Where to Work</b>	<b>Hints</b>
Work area	<ul style="list-style-type: none"> <li>• Add Product type as a child of Product line and aggregate as Total.</li> </ul>
Properties pane\Text Source property	<ul style="list-style-type: none"> <li>• Additional Challenge:             <ul style="list-style-type: none"> <li>• Set the Total summary label for Product type so that the Product line data item value appears</li> <li>• Set Text Source property to Data Item Value</li> <li>• Choose Product line as the data item value</li> </ul> </li> </ul>
<b>Task 4: Examine crosstab nodes and crosstab node members.</b>	
<b>Where to Work</b>	<b>Hints</b>
Work area	<ul style="list-style-type: none"> <li>• Drag Product line row to Retailer type row, then click undo.</li> </ul>
	<ul style="list-style-type: none"> <li>• Select Crosstab node ancestor of Product line.</li> </ul>
	<ul style="list-style-type: none"> <li>• Drag Product line below Retailer type row.</li> </ul>

If you need more information to complete a task, see the Step-by-Step instructions at the end of the Workshop.

## Workshop 1: Workshop Results

At the end of Task 3, the results appear as follows:

Revenue		2004	2005	2006	2007	Total
Camping Equipment	Cooking Gear	59,761,536.5	70,843,132.06	83,917,515.27	58,313,800.35	272,835,984.18
	Lanterns	28,662,904.19	29,788,923.06	40,439,357.85	28,034,475.54	126,925,660.64
	Packs	70,296,289.17	87,416,758.37	111,009,558.31	83,157,796.99	351,880,402.84
	Sleeping Bags	65,239,462.96	77,038,477.82	98,164,939.4	68,730,008.17	309,172,888.35
	Tents	109,026,145.24	137,670,281.86	166,851,052	114,674,248.92	528,221,728.02
	<b>Camping Equipment</b>	<b>332,986,338.06</b>	<b>402,757,573.17</b>	<b>500,382,422.83</b>	<b>352,910,329.97</b>	<b>1,589,036,664.03</b>
Golf Equipment	Golf Accessories	10,655,401.1	13,251,774.09	16,184,834.94	11,422,333.75	51,514,343.88
	Irons	54,093,311.24	55,116,575.97	81,997,784.03	63,606,666.75	254,814,337.99
	Putters	29,419,377.82	28,923,250.88	29,695,643.19	18,145,999.48	106,184,271.37
	Woods	59,385,760.82	70,714,826.13	102,232,008.39	81,565,819.31	313,898,414.65
	<b>Golf Equipment</b>	<b>153,553,850.98</b>	<b>168,006,427.07</b>	<b>230,110,270.55</b>	<b>174,740,819.29</b>	<b>726,411,367.89</b>
Mountaineering Equipment	Climbing Accessories		21,876,490.73	29,736,885.88	29,483,205.87	81,096,582.48
	Rope		28,655,271.69	46,326,469.15	39,444,903.89	114,426,644.73
	Safety		22,505,865.68	32,716,937.1	28,014,081.2	83,236,883.98
	Tools		34,062,031.84	52,259,531.13	44,578,458.74	130,900,021.71
	<b>Mountaineering Equipment</b>		<b>107,099,659.94</b>	<b>161,039,823.26</b>	<b>141,520,649.7</b>	<b>409,660,132.9</b>
Outdoor Protection	First Aid	6,902,750.07	2,890,456.76	1,789,507.36	846,984.93	12,429,699.12
	Insect Repellents	17,964,327.13	11,579,433.65	5,217,019.63	2,062,062.11	36,822,842.52
	Sunscreen	11,298,443.87	10,538,683.67	3,342,648.85	1,561,978.22	26,741,754.61
	<b>Outdoor Protection</b>	<b>36,165,521.07</b>	<b>25,008,574.08</b>	<b>10,349,175.84</b>	<b>4,471,025.26</b>	<b>75,994,296.25</b>



The next page of the report appears as follows:

Revenue		2004	2005	2006	2007	Total
Personal Accessories	Binoculars	29,246,444.08	30,310,573.76	39,974,426.94	31,303,208.42	130,834,653.2
	Eyewear	154,310,479.02	208,648,605.39	282,226,165.14	221,939,948.93	867,125,198.48
	Knives	36,374,634.09	33,164,183.25	47,704,144.36	36,177,477.89	153,420,439.59
	Navigation	51,598,510.99	43,724,569.8	62,330,073.61	49,837,487.52	207,490,641.92
	Watches	120,117,025.43	140,475,423.7	161,774,598.37	104,435,327.09	526,802,374.59
	Personal Accessories	391,647,093.61	456,323,355.9	594,009,408.42	443,693,449.85	1,885,673,307.78
Outdoors Shop		226,148,611.02	353,312,717.17	506,856,636.95	407,201,378.24	1,493,519,343.38
Sports Store		251,401,837.11	299,649,268.91	381,884,219.14	288,347,271.83	1,221,282,596.99
Department Store		218,500,823.58	233,827,385.24	261,984,087.03	166,634,238.57	880,946,534.42
Golf Shop		81,198,300.88	117,365,629.83	165,385,412.36	128,119,126.69	492,068,469.76
Warehouse Store		72,272,305.99	75,242,324.03	75,473,902.44	41,619,942.57	264,608,475.03
Eyewear Store		37,778,913.44	46,904,339.83	65,791,448.99	59,022,366.43	209,497,068.69
Direct Marketing		20,577,679.9	21,318,284.71	21,916,720.66	11,132,072.24	74,944,757.51
Equipment Rental Store		6,474,331.8	11,575,640.44	16,598,673.33	15,259,877.5	49,908,523.07

At the end of Task 4, the results appear as follows:

Revenue		<#Year#>△	Total
<#Retailer type#>▽		<#1234#>	<#1234#>
<#Product line#>△	<#Product type#>	<#1234#>	<#1234#>
	<Product line>	<#1234#>	<#1234#>

## Workshop 1: Step-by-Step Instructions

Server: localhost  
 User/Password: brettonf/Education1!  
 Studio: Report Studio  
 Package: Go Data Warehouse (query)  
 Report Type: Crosstab  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Create and sort a crosstab report.

- From the **Insertable Objects** pane, add the following query items to the crosstab:
  - **Products** → **Product line** to **Rows**
  - **Time** → **Year** to **Columns**
  - **Sales fact** → **Revenue** to **Measures**
- On the column edge, click **Year**, on the toolbar, click **Sort**, and then click **Ascending**.
- On the row edge, click **Product line**, on the toolbar, click **Sort**, and then click **Ascending**.

### Task 2. Format the crosstab and perform advanced sorting.

- In the **Insertable Objects** pane, on the **Source** tab, expand **Retailer type**, and then drag **Retailer type** to **Rows** as a peer of **Product line**.
- On the row edge, right-click **Product line**, and then click **Select Member Fact Cells**.

3. From the toolbar, click **Foreground Color**, and then click **Blue**.
4. On the row edge, click **Retailer type**, and then in the **Properties** pane, under **Data**, double-click the **Sorting** cell.
5. In the **Sorting** box, from the **Data items** pane, drag **Revenue** to the **Sort List** pane, and then double-click the **Revenue** item you just added to change the sort order from ascending to descending.
6. Click **OK**.
7. On the column edge, click **Year**, on the toolbar, click **Summarize**, and then click **Total**.

### **Task 3. Add aggregate data to the crosstab.**

1. From the **Insertable Objects** pane, on the **Source** tab, drag **Product type** to **Rows** as a child of **Product line**.
2. On the row edge, click **Product type**, on the toolbar, click **Summarize**, and then click **Total**.
3. On the row edge, click **Total**, in the **Properties** pane, under **Text Source**, click the **Source Type** cell, and then in the list, click **Data Item Value**.
4. In the **Properties** pane, click the **Data Item Value** cell, and then in the list, click **Product line**.
5. On the toolbar, click **Run Report**.
6. Close **IBM Cognos Viewer**.

## **Task 4. Examine crosstab nodes and crosstab node members.**

1. On the row edge, click the **Product line** row, and then drag it below the **Retailer type** row.
2. On the toolbar, click **Undo**.
3. On the row edge, ensure **Product line** is selected, in the **Properties** pane, click **Select Ancestor**, and then click **Crosstab Node**.
4. In the crosstab, drag **Product line** below **Retailer type**.
5. Close **Report Studio** without saving changes, and then close **Internet Explorer**.



# Present Data Graphically

IBM Cognos BI



**Business Analytics**

© 2010 IBM Corporation



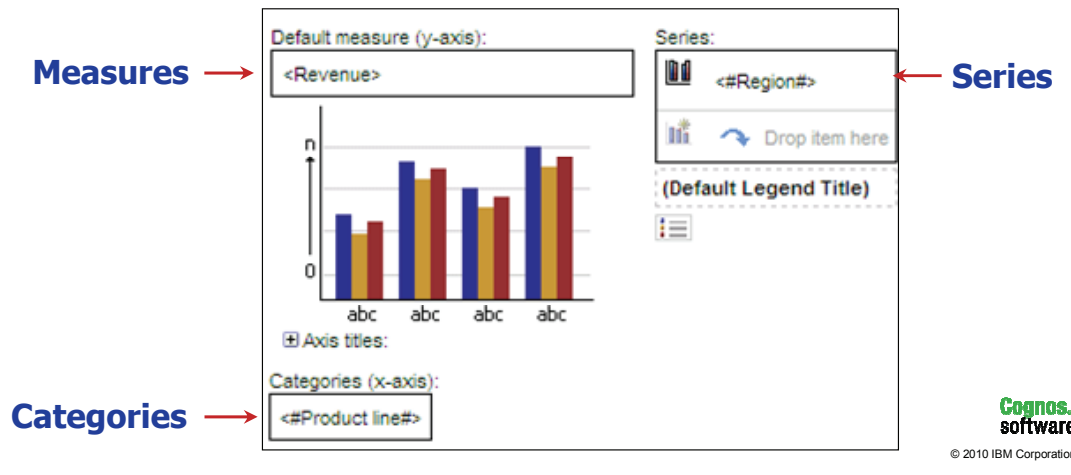
## Objectives

- At the end of this course, you should be able to:
  - create charts containing peer and nested columns
  - present data using new chart type options
  - add context to charts
  - create and reuse custom chart palettes
  - present key data in a single dashboard report

**INTERACTION - Star Sticker:** Star each objective as it is introduced.

## Create a Chart Report

- Display data graphically to effectively show comparisons, relationships, and trends using one or more of the available chart types.



The chart user interface lets you format and customize different objectives in charts.

The IBM Cognos BI v10.1 release includes two charting engines. Users can switch between the legacy chart engine and the new chart engine. The default is set to the legacy chart engine. Legacy chart authoring allows you to create several types of standard charts. The new chart authoring feature offers rich, visually appealing charts with additional options to enhance them.

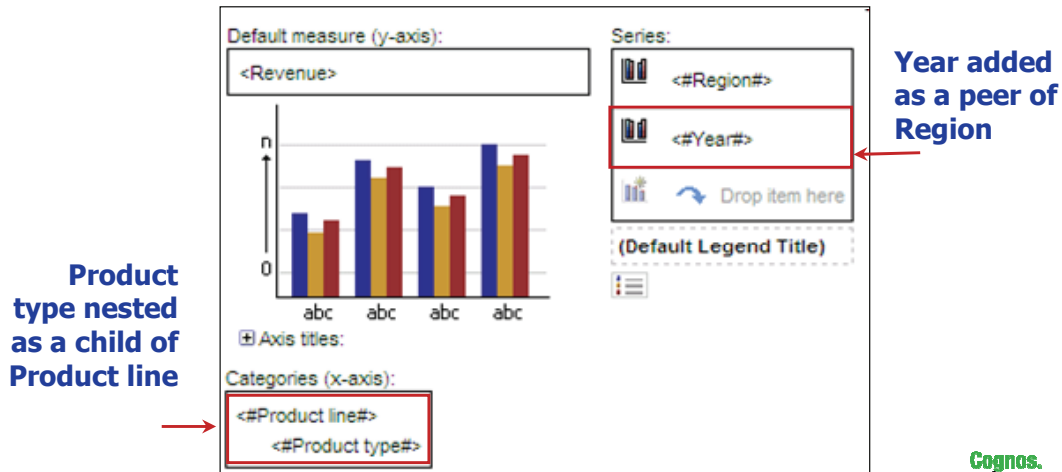
The features and benefits of each chart type are displayed at the bottom of the Insert Chart dialog box when you click on a chart type. Many chart aspects can be customized including the title, the axes, 2D and 3D properties, and adding baselines.

**INTERACTION - Whiteboard:** Ask participants what type of charts they have seen or used in reports. List each type on the whiteboard.



## Create Charts Containing Peer and Nested Items

- You can add data to charts as peers or children of existing items.



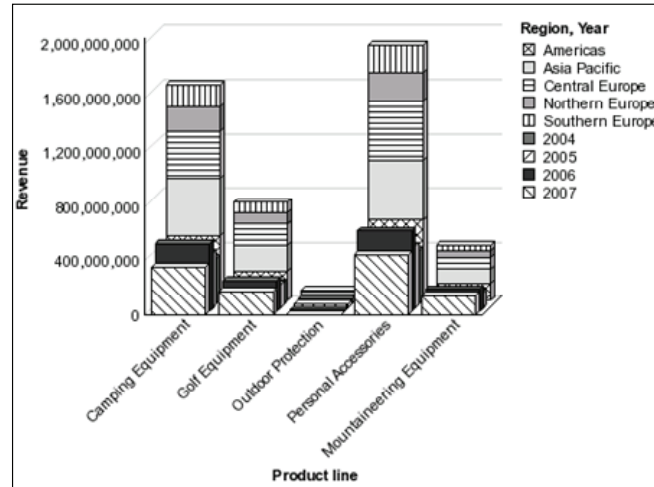
You can use chart drop zones to add items as parents, peers or children of other items in the chart, allowing you to quickly create and customize charts to meet your business needs.

Since multiple items are often added to the vertical axis of a chart, the Series area of chart types contains an additional drop zone that can be used to create peer unions between items.

Even though there is no additional drop zone shown for the horizontal axis, you can create peer unions between items on the horizontal axis.

## Create and Reuse Custom Chart Palettes

- You can add patterns, colors, and gradients to chart palettes.

Cognos.  
software

© 2010 IBM Corporation

Patterns are especially useful when users print charts in black and white.

You can create a chart palette that contains only patterns, or you can create a palette that contains a combination of patterns, colors, and gradients.

To reuse a custom palette, copy the palette to the clipboard and then paste the palette into a different chart report.

If you create a custom chart palette, to save time, you can copy the palette from one chart, and then paste it into different charts.

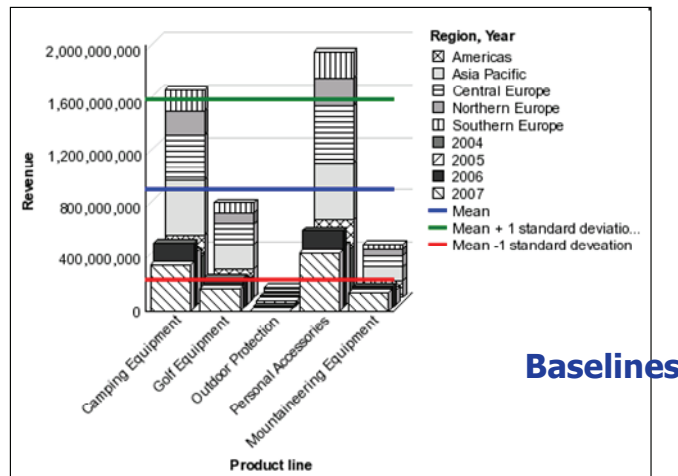
When using patterns in charts, the chart displays best when you include borders for chart elements such as the bars or pie slices.

There is a ready-made Patterns palette that report authors can select when defining chart palettes.

You can change the foreground and background colors for patterns in the palette. For example, you could change the foreground color of a pattern to white and the background of the pattern to black

## Add Data-driven Baselines and Markers to Charts

- To help consumers analyze data, you can add data-driven baselines to charts.



Baselines

Cognos.  
software

© 2010 IBM Corporation

Baseline help report consumers quickly identify target or threshold values in charts.

## Demo 1: Create and Format Chart Reports

### Purpose:

You will create a combination chart displaying revenue generated by different regions, product lines and within different years. You want users to easily distinguish between region data from year data. Because this report will be printed in black and white, you will create a custom palette for the chart and then reuse it for the second series chart. You will add baselines for this chart to display the mean, plus or minus one standard deviation.

Server:	localhost
User/Password:	brettonf/Education1!
Studio:	Report Studio
Package:	Go Data Warehouse (query)
Report Type:	Chart (Combination Chart- Stacked Bar and Stacked area)
Folder:	Sales and Marketing (query)
Namespace:	Sales (query)

### Task 1. Create the Combination Chart.

1. From the **Tools** menu, click **Options**, click the **Advanced** tab, and clear the **Use legacy chart authoring** check box, and then click **OK**.
2. Add the following data items to the chart.
  - **Sales fact** → **Revenue** to **Default measure (y-axis)** drop zone
  - **Products** → **Product line** to **Category (x-axis)** drop zone
  - **Retailers** → **Region** to the first **Series** drop zone

## Task 2. Combine area and bar charts in a single presentation.

You want the Region to appear as an area clustered chart rather than an area stacked chart.

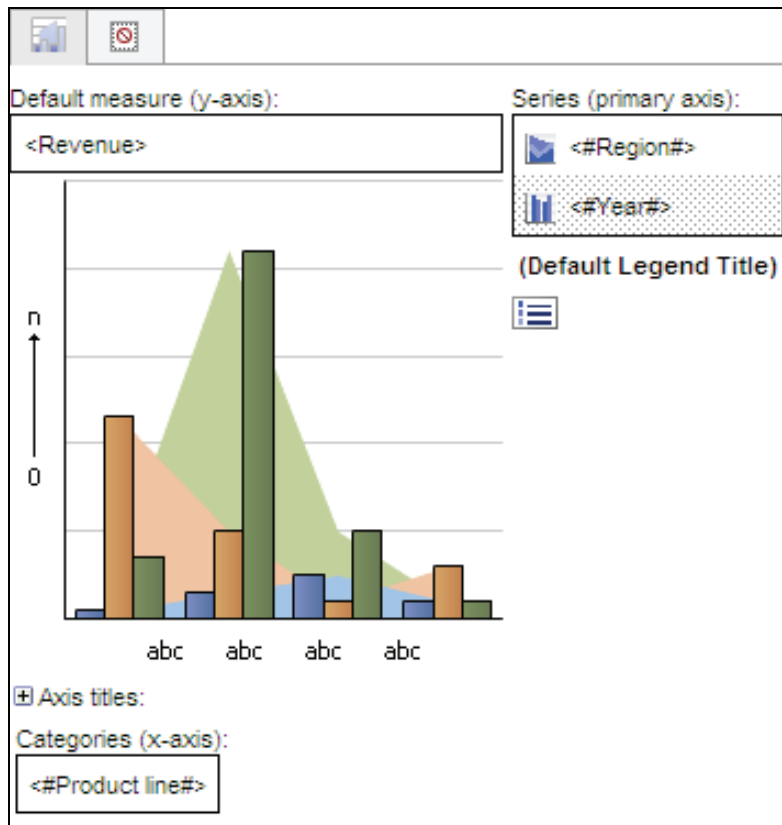
1. In the **Series** area, click the chart icon for **Region**.
2. In the **Properties** pane, under **General**, click the **Series Type** and click **Clustered** from the list.

You also want to add a clustered bar chart to display the revenue generated for each product line by year.

3. In the **Insertable Objects** pane, on the **Source** tab, expand **Time**, and then drag **Year** to the **Series (primary axis)** drop zone beneath that series drop zone for **Region**.

- Click the chart icon for the **Year** series and change the **Series Type** property to **Clustered**.

The results appear as follows:



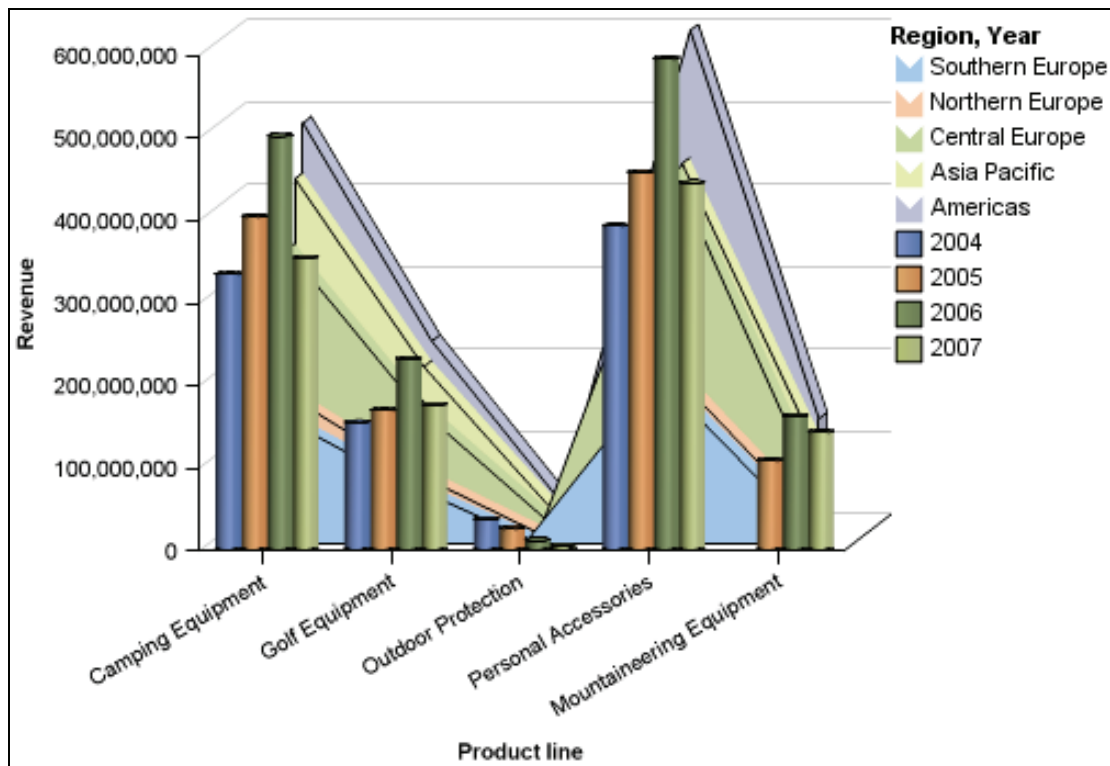
5. On the toolbar, click **Run Report**.

Both the region and the year data appear on the chart, however it is difficult to see the values of the different regions and the chart can be customized further.

6. Close **IBM Cognos Viewer**.
7. In the **Series** area, click the **Region** text, click the **Sort** toolbar icon, and then click **Descending**.
8. In the **Series** area, click the **Region** chart icon, then under **Properties**, under **Box**, click **Borders**, and then select **Show**.
9. In the **Series** area, click the **Year** text, click the **Sort** toolbar icon, and then click **Ascending**.
10. In the **Series** area, click the **Year** chart icon, then under **Properties**, under **General**, select **Bar Shape** and then click **Cylinder**.
11. Select the entire chart, in the **Properties** pane, under **General**, beside **Depth**, and then select **75** from the list.

- On the toolbar, click **Run Report**.

The results appear as follows:



The year data appears as a bar chart and the region data appears as an area chart. This allows the data to be easily compared

- Close **IBM Cognos Viewer**.

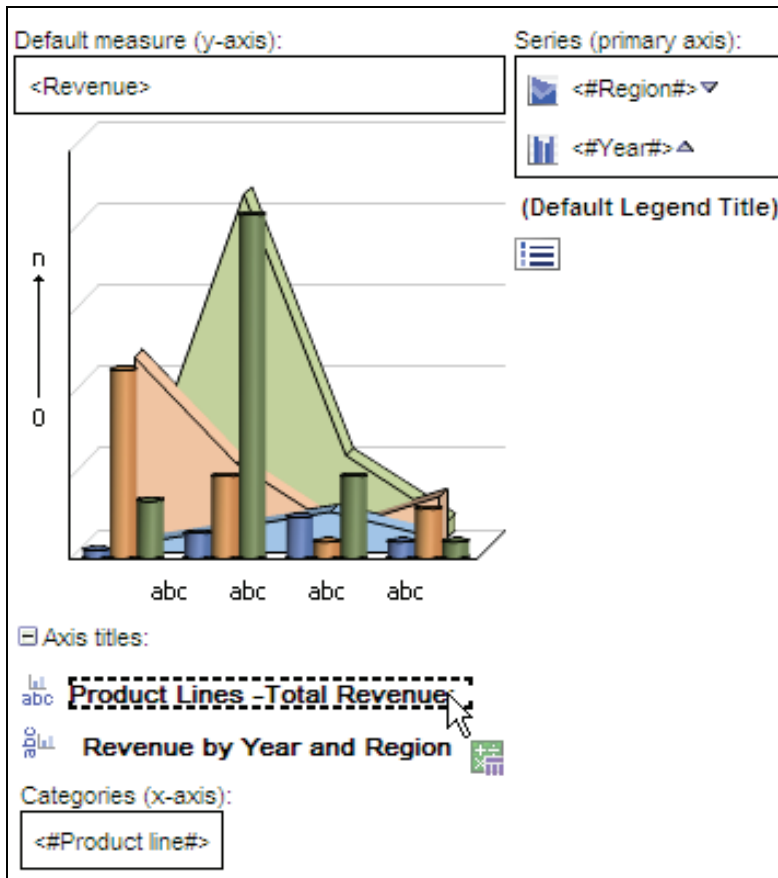
### Task 3. Format an axis title.

- In the chart area, expand **Axis titles**.
- In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Text Item** to the first **Default Axis Title** drop zone.

This is the drop zone for the horizontal axis title.



3. In the **Text** dialog box, type **Product Lines -Total Revenue**: press the space bar, and then click **OK**.
4. Add the following text to the second **Default Axis Title** drop zone:  
**Revenue by Year and Region**
5. From the **Insertable Objects** pane, on the **Toolbox** tab, drag a **Query Calculation** to the end of the text in the horizontal axis title drop zone.



6. In the **Name** box, type **Total Revenue for Product Lines** and then click **OK**.
7. In the **Data Item Expression** dialog box, in the **Expression Definition** pane, type **total(**

---

This would be a good point to briefly point out the differences between a Query Calculation and a Layout Calculation. Additional information will be presented in a later module.

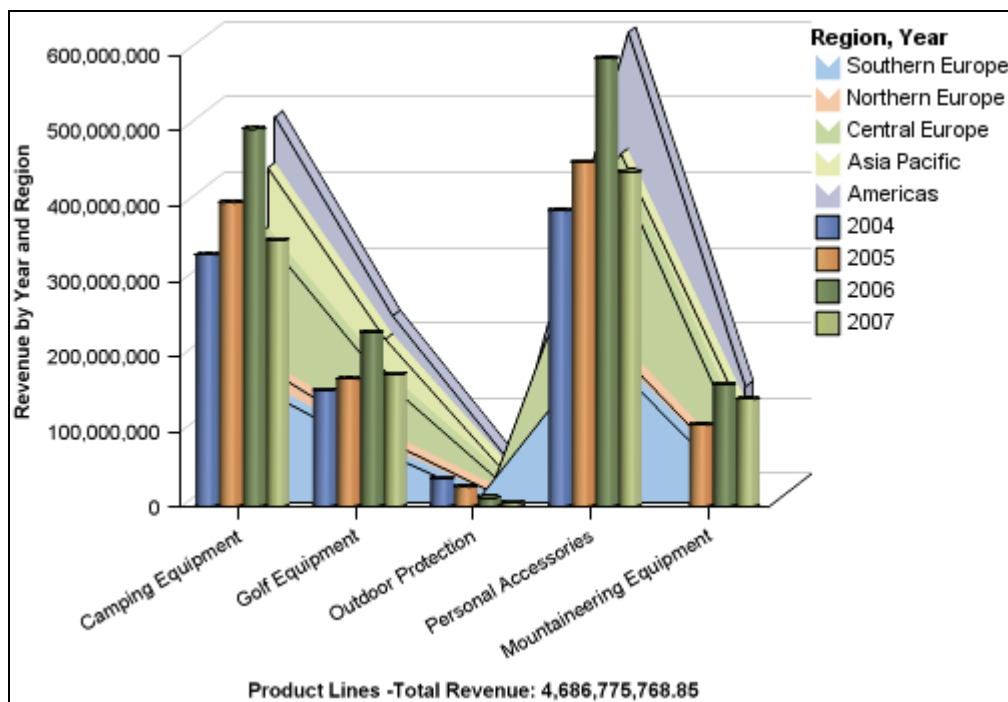
8. In the **Available Components** pane, click the **Data Items** tab, and then drag **Revenue** to the end of the expression.
9. At the end of the expression, type )

The results appear as follows:

Expression Definition:
total([Revenue])

10. Click **validate**, click **OK** to close the dialog box, and then on the toolbar, click **Run Report**.

The results appear as follows:



The total product line revenue displays under the horizontal axis.


11. Close **IBM Cognos Viewer**.

---

Tasks 4-6 are optional; however they must all be done or not done at all.

## Task 4. Create a custom palette (optional).

Because this chart will be printed in black and white, you will create a custom palette that does not use any colors.

1. Click the **Region** series chart icon, and then in the **Properties** pane, under **Color & Background**, double-click the **Palette** cell.
2. In the **Chart Palette Presets**  list, click **Gray Scale**.

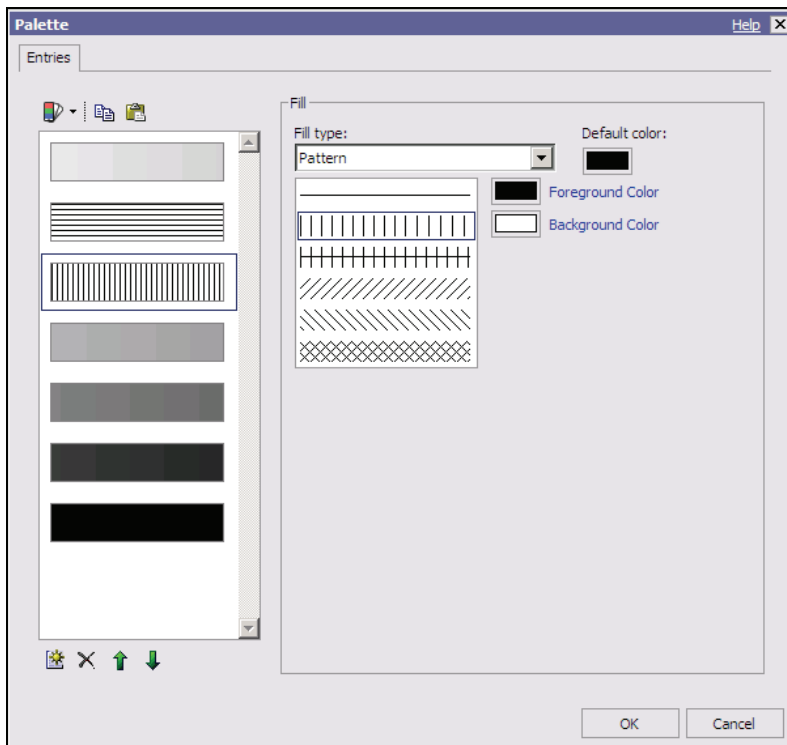
You want to add some patterns to the palette so that there are enough palette entries for all the items in our chart.



3. In the left pane, click **New** , in the **Fill type** list, click **Pattern**, then change the **Default** and **Foreground** color to **Black**.

A new pattern entry is added to the palette.

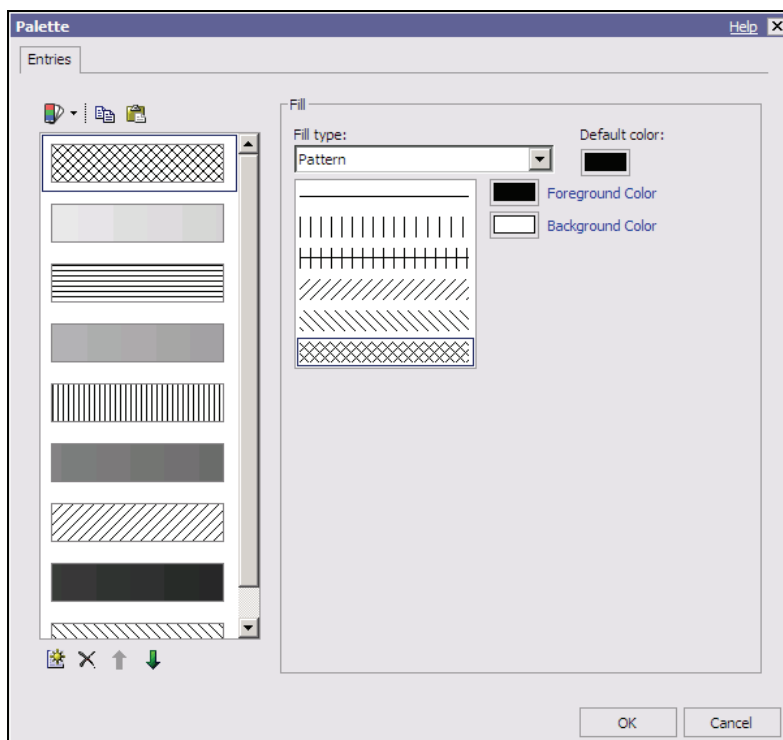
4. Click **New** again, in the list, click **Pattern**, in the **Pattern** pane, click the second option, then change the **Default** and **Foreground** color to **Black**.

The results appear as follows:



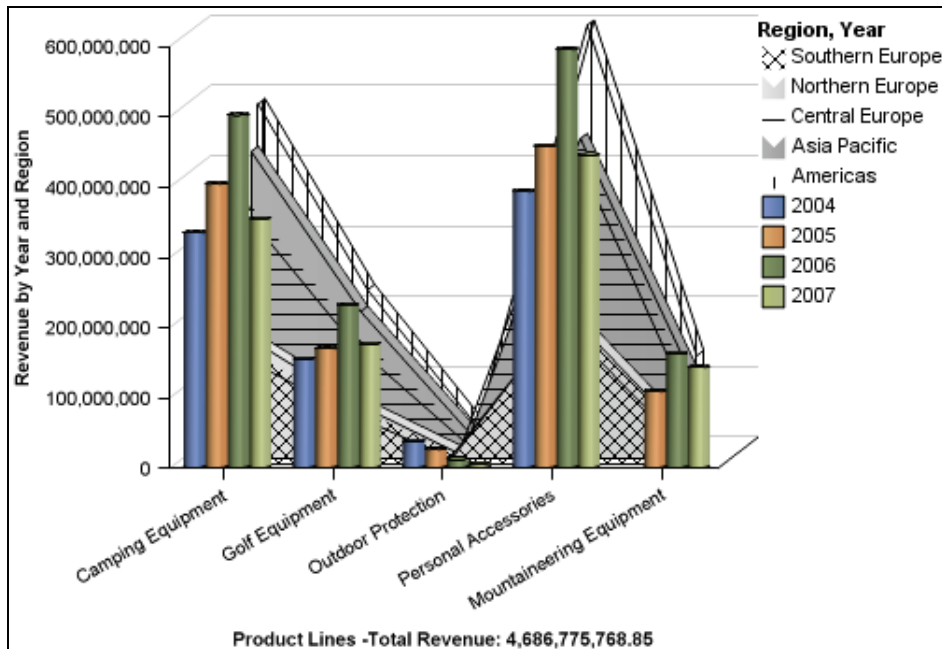
5. Click **Move Down**  to move this pattern below the second grey scale entry.
6. Click **New** again, in the list, click **Pattern**, in the right pane, click the fourth option, then change the **Default** and **Foreground color** to **Black**.
7. Click **Move Palette Entry Down** to move this pattern below the third grey scale entry.
8. Repeat steps 6 to 7 to add the fifth pattern option and move it below the fourth grey scale entry.
9. In the list of palette entries, click the bottom grey scale option, and then click **Delete**. (Use the Delete option just below the pallet window)
10. Click **New**, in the list, click **Pattern**, in the **Pattern** pane, click the sixth option, and then change the **Default** and **Foreground color** to **Black**.
11. Click **Move Palette Entry Up**  until the pattern you just added appears at the top of the list of palette entries.

The results appear as follows:



12. Click **OK** to close the **Palette** dialog box.
13. On the toolbar, click **Run Report**.


The results appear as follows:




14. Close **IBM Cognos Viewer**

## Task 5. Reuse Custom palette (optional).

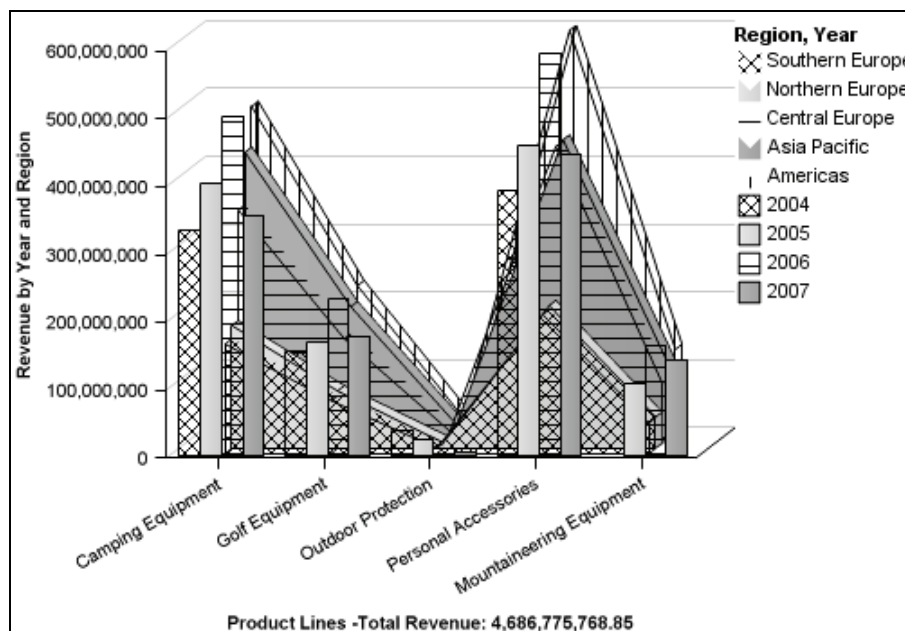
We now want to reuse the custom palette that was just created for the Year series bar chart.

1. With **Region** series still selected, in the **Properties** pane, under **Color & Background**, double-click the **Palette** cell.
2. Click **Copy Palette** , and then click **OK**.

3. Select the **Year** series icon, and then, in the **Properties** pane, under **Color & Background**, double-click the **Palette** cell.
4. In the **Palette** dialog box, click **Paste Palette** , and then click **OK**.
5. With the **Year** series chart icon still selected, change the **Bar Shape** property to **Rectangle**.
6. On the toolbar, click **Run Report**

The chart uses the new custom palette for both of the series charts.

The results appear as follows:



7. Close **IBM Cognos Viewer**.

## Task 6. Add baselines to the chart.

1. Click the chart background, and then in the **Properties** pane, under **Chart Annotations**, double-click the **Numeric Baselines** cell.

You will first add a baseline to display the mean revenue based on year.

2. In the **Baselines** dialog box, click **New**, in the list, click **Mean**, set the **Based on** box to **Year,Year**, leave the **Number of standard deviations** set to **0**, and then make sure the **Baseline Label** reads **Mean**.
3. Under **Baseline Properties**, click **Line Styles**, and set **Weight** to **2 pt**, and then **Line Color** to **Blue**.
4. Click **OK**, and **OK** again

You will next add a baseline to display a +1 standard deviation from the mean revenue based on Year.

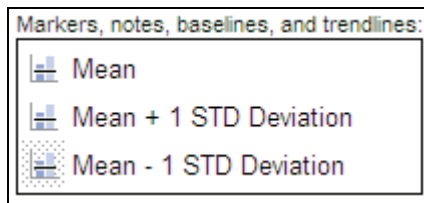
5. Click **New**, in the list click **Mean**, set the **Based on** box to **Year,Year**, in the **Number of standard deviations** box type **1**, and then type **Mean + 1 STD Deviation** in the **Baseline Label** box.
6. Under **Baseline Properties**, click **Line Styles**, and set **Weight** to **2 pt**, and then **Line Color** to **Green**.

7. Click **OK**, and **OK** again

You will next add a baseline to display a -1 standard deviations from the mean revenue based on Year.

8. Click **New**, in the list click **Mean**, set the **Based on** box to **Year,Year**, and in the **Number of standard deviations** box type **-1**, and then type **Mean -1 STD Deviation** in the **Baseline Label** box.
9. Under **Baseline Properties**, click **Line Styles**, and set **Weight** to **2 pt**, and then **Line Color** to **Red**.
10. Click **OK**, and **OK** again, and then **OK** again to close the **Baselines** dialog box.

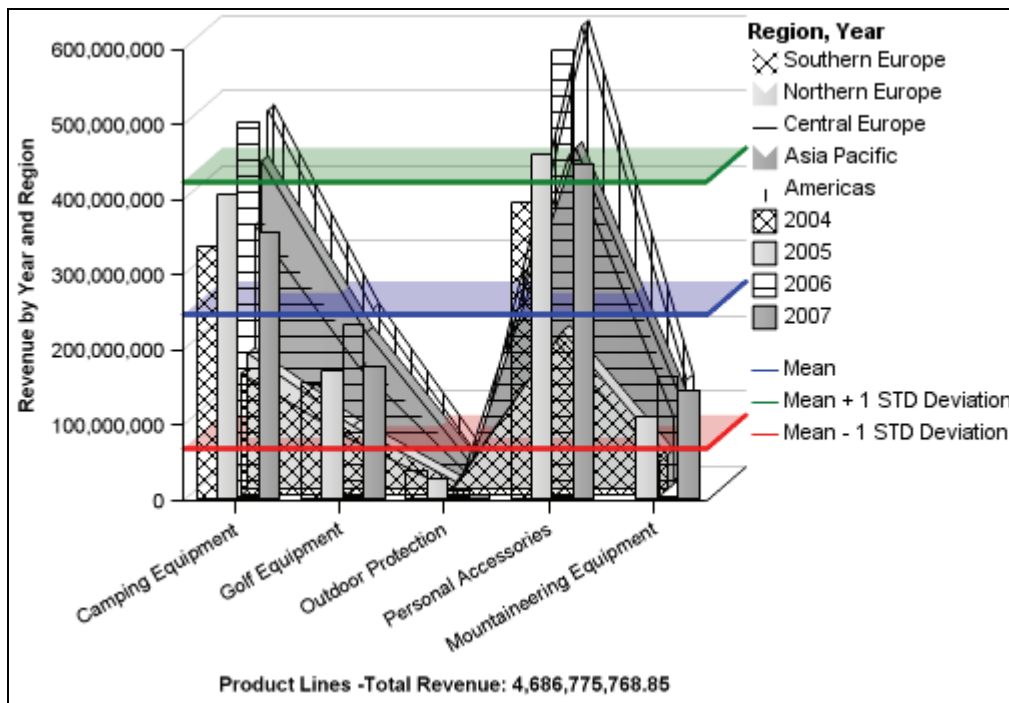
The results appear as follows:





11. On the toolbar, click **Run Report**.

The results appear as follows:



The chart uses a custom palette and displays the baselines you specified.

12. Close **IBM Cognos Viewer**.

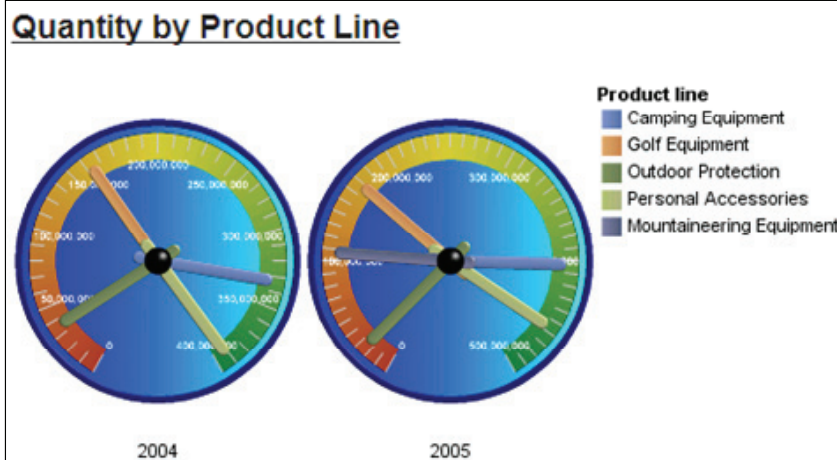
Leave Report Studio open for the next demo.

### Results:

You created a report using a combination chart to display revenue generated in different regions as an area chart, and a bar chart displaying revenue generated for different years. You added data to the horizontal axis title displaying the total revenue generated by all product lines and created a custom palette for the region area chart. You then reused this palette for the year bar chart, and then added data-driven baselines to this chart.

## Compare Values Using Gauge Charts

- Gauge charts are useful for comparing values between a small number of variables.

Cognos.  
software

© 2010 IBM Corporation

A gauge chart plots a data series against a measure using a dial or gauge for the measure, and needles or indicators for the series members. A gauge chart can become cluttered and confusing if a large number of members are returned for the Series (needles) in the chart.

## Demo 2: Create a Gauge Chart Report

### Purpose:

You want to create a chart for users to quickly compare how different product lines are selling for different retailer types. A gauge chart is a good way to show comparisons between multiple variables.

Server: localhost  
 User/Password: brettonf/Education1!  
 Studio: Report Studio  
 Package: Go Data Warehouse (query)  
 Report Type: Gauge Chart with Bevelled Border  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Create a gauge chart.


1. From the **Tools** menu, click **Options**, and then click the **Advanced** tab.
2. Select the **Use legacy chart authoring** check box, and then click **OK**.
3. From the **Insertable Objects** pane, on the **Source** tab, add the following query items to the chart:
  - **Sales fact** → **Revenue** to **Default measure** drop zone

You want a needle to appear on each gauge for each product line.

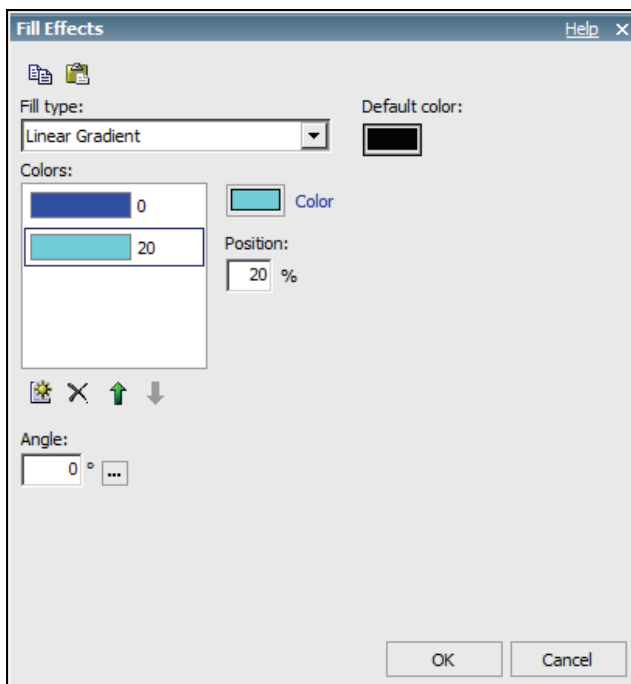
  - **Products** → **Product line** to **Gauge Axes** drop zone
  - **Time** → **Year** to **Categories (gauges)**
4. Double-click the report title text, type **Revenue by Product Line** and then click **OK**.
5. Click the block surrounding the report title, and then click **Left**.

6. In the **Properties** pane, under **Positioning**, double-click the **Size & Overflow** cell, in the **Width** box, type **500**, and then click **OK**.
7. Click the chart background, and then in the **Properties** pane, under **Positioning**, double-click the **Size & Overflow** cell.
8. In the **Width** and **Height** boxes, type **500**, and then click **OK**.

## Task 2. Modify the axis labels and Gauge properties.

1. Click the **Axis Labels** , and then, from the tool bar, change the **Foreground Color** to **White**, and then click **Bold**.
2. In the chart area, click the gauge background.
3. In the **Properties** pane, under **General**, double click the **Gauge Border** cell, change **Color** to **Navy**, click **OK**, and then **OK** again.
4. Under **Color and Background**, double click **Dial Face Fill**.
5. From **Fill type**, select **Linear Gradient**, then from **Colors**, select **Blue** and **Aqua**, and set the **Aqua** color **Position** to **20%**.

The results appear as follows:



6. Click **OK**.

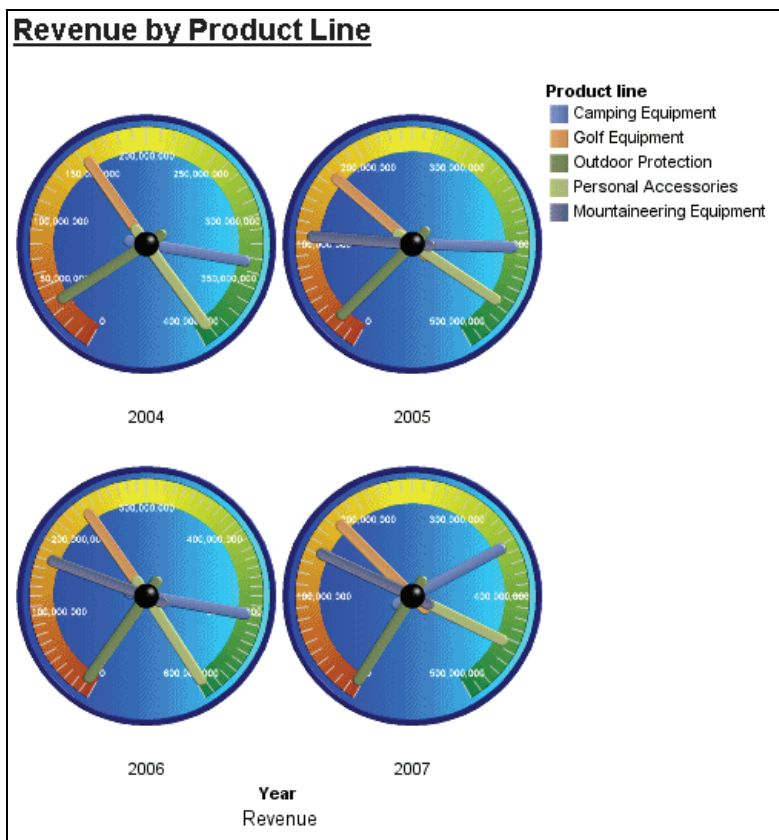
### Task 3. Modify the arc colors.

1. Click the **Gauge Axes** icon, and then in the **Properties** pane, under **Color & Background**, double click the **Gauge Axis Colors** cell.

To indicate product lines that are selling poorly, you want the low end of the arc to appear in red.

2. In the **Gauge Axis Colors** dialog box, click the center color, and then click **Color**.
3. Click **Named Colors**, click **Yellow**, and then click **OK**.
4. Ensure the center color (yellow) in the list is selected, change the position percentage to **50%**, and then click **OK**.
5. On the toolbar, click **Run Report**.

The results are as follows:



6. Close **IBM Cognos Viewer**.

## Task 4. Create a New Gauge Chart.

1. From the **Tools** menu, click **Options**, and then click the **Advanced** tab.
2. Deselect the **Use legacy chart authoring** check box, and then click **OK**.
3. Click **New**, and click **No** to saving the report.
4. Double click **Chart**, and then click **Gauge**.
5. Accept the default gauge chart (**Gauge Chart with Bevelled Border**), and then click **OK**.
6. From the **Insertable Objects** pane, on the **Source** tab, add the following query items to the chart:
  - **Sales fact** → **Revenue** to **Default measure** drop zone

You want a needle to appear on each gauge for each product line.

  - **Products** → **Product line** to **Gauge Axes** drop zone

## Task 5. Set the properties of the Chart.

1. Click the **Gauge Axes** icon.
2. In the **Properties** pane, under **General**, double-click the **Axis Angles** cell, and then in the **Axis direction** list, click **Counterclockwise**.
3. In the **Axis start angle** box, type **320**, and then in the **Axis end angle** box, type **220**.
4. Click **OK**, and then click the chart background.
5. In the **Properties** pane, under **General**, double-click the **Gauge Border** cell, deselect the **Show Border** check box, and then click **OK**.
6. Under **Chart Annotations**, double-click **Legend**, deselect the **Show Legend** check box, and then click **OK**.

7. Under **Positioning**, double-click **Size & Overflow**, type **200** for **Height** and **Width**, and then click **OK**.
8. Double-click the report title, type **Revenue by Product Line** and then click **OK**.
9. Click the **Block** object (that contains the report title), and then in the **Properties** pane, under **Font**, click **Horizontal Alignment**.
10. In the list, click **Left**.

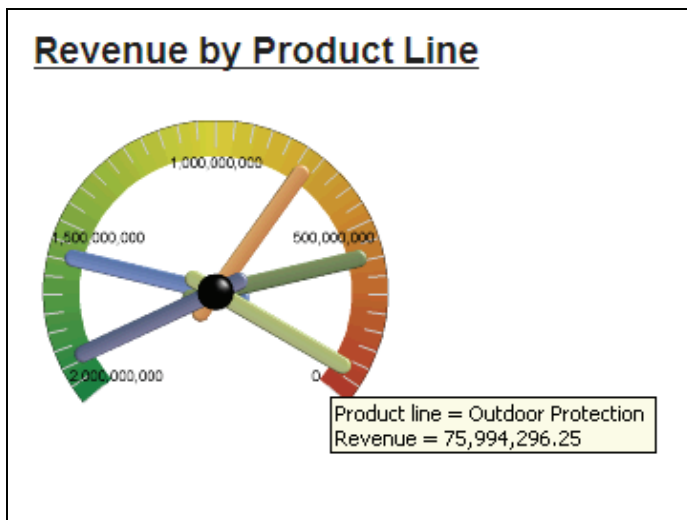
## Task 6. Modify the arc colors.

1. Click the **Gauge Axes** icon, and then in the **Properties** pane, under **Color & Background**, double-click **Gauge Axis Colors**.

To indicate product lines that are selling poorly, you want the bottom of the arc to appear in red.

2. In the **Gauge Axis Colors** box, select the center color (yellow), and then in the **Position** box, type **50**.
3. Click **OK**, and then on the toolbar, click **Run Report**.

The results are as follows:



4. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next demo.

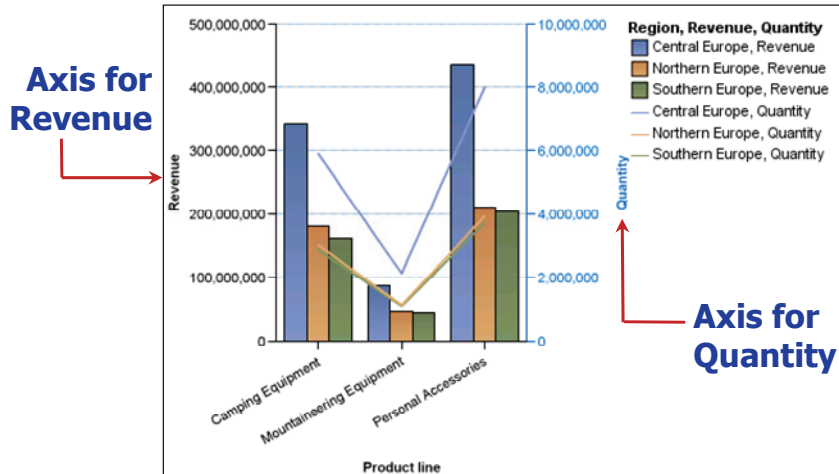
**Results:**

**You created gauge charts to compare the revenue generated by different product lines for each of your retailer types.**



## Display Items on Separate Axes

- You can improve the clarity of charts by displaying values for different items on separate axes.

Cognos.  
software

© 2010 IBM Corporation

Using separate axes is useful when the value ranges for different items displayed in the chart are significantly different.

## Demo 3: Show the Same Data Graphically and Numerically

### Purpose:

You want to create a report that shows revenue by product line and quantity by region. You want the report to focus on **Camping Equipment, Mountaineering Equipment, and Personal Accessories** sales for the three European sales regions. You will build a combination chart and a crosstab that report on the same information. You will add a microchart to the crosstab for a quick overview of product line revenue for all regions specified.

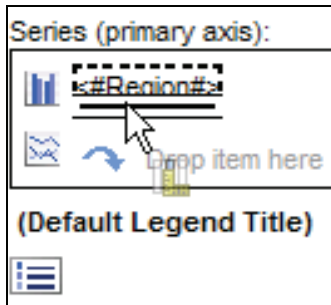
Server: localhost  
 User/Password: brettonf/Education1!  
 Studio: Report Studio  
 Package: Go Data Warehouse (query)  
 Report Type: Blank  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Create a combination chart.

1. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Chart** to the work area.
2. In the left pane, click **Combination**.
3. Accept the default combination chart (**Clustered Bar and Clustered Line**), and then click **OK**.
4. In the **Insertable Objects** pane, click the **Source** tab, expand **Products**, and then drag the **Product line** query item to the **Categories (x-axis)** drop zone.
5. Expand **Retailers**, and drag **Region** to the **Bar** drop zone under **Series (primary axis)**.

- Expand **Sales fact**, and drag **Revenue** to same drop zone under **<#Region#>**.

The actions appear as follows:



## Task 2. Show two measures on different Y axes.

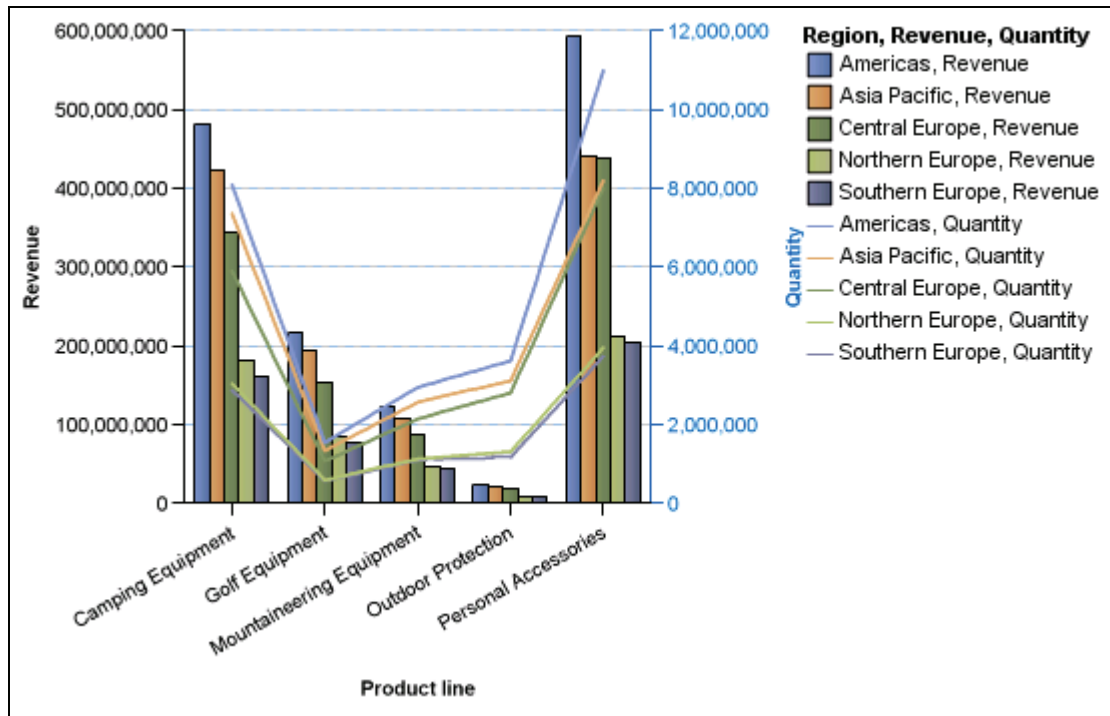
- Click the chart background, and then in the **Properties** pane, under **General**, double-click **Combinations**.
- Select the **Secondary Axis** check box, and then click **Edit**.
- Click **Line**, and then click **OK**.
- Click **Primary Axis**, click **Clustered Line**, and then click **OK**.
- From the **Insertable Objects** pane, drag **Region** (from **Retailers**) to the **Series (secondary axis)** drop zone.
- From the **Source** tab, drag **Quantity** (from **Sales fact**) to the same drop zone under **Region1**.

The results appear as follows:



7. Select the **Line** drop zone in the **Series (primary axis)** box and click **Delete**.
8. On the toolbar, click **Run Report**.

The results appear as follows:



This chart is too complicated for your consumers to read clearly. In Task 4 you will add filters to report only on Camping Equipment, Mountaineering Equipment, and Personal Accessories in the three European regions.

9. Close **IBM Cognos Viewer**.

### Task 3. Add a crosstab to the report.

1. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Crosstab** to the right of the chart.
2. In the **Insertable Objects** pane, click the **Source** tab, and then from **Products** drag **Product line** to **Rows**.

#### Instructor Notes

Task 3: You can show students that by changing the Crosstab to Query 1 (Crosstab in the Properties pane, and then under Data change the Query to Query1), they can populate the crosstab from the Data Items pane. This method will also simplify Task 4 (see the IG notes on the next page).

3. From **Retailers**, drag **Region** to **Columns**.
4. From **Sales fact**, drag **Revenue** under **Region** as a nested column.
5. Drag **Quantity** to the right of **Revenue** as another nested column under **Region**.
6. On the toolbar, click **Run Report**.

You can see in the combination chart that the top revenue generating region is Americas. The crosstab provides the exact numbers as in the chart.

You want to filter the results to focus on sales in the European regions for Camping Equipment, Mountaineering Equipment, and Personal Accessories.

7. Close **IBM Cognos Viewer**.

#### **Task 4. Add filters to focus the data.**

1. Click the combination chart to select it.
2. On the toolbar, click **Filters**, and then click **Edit Filters**.
3. Click **Add**, click **Advanced**, and then click **OK**.
4. Click the **Data Items** tab, drag **Product line** to the **Expression Definition** pane, and then create the expression as follows:

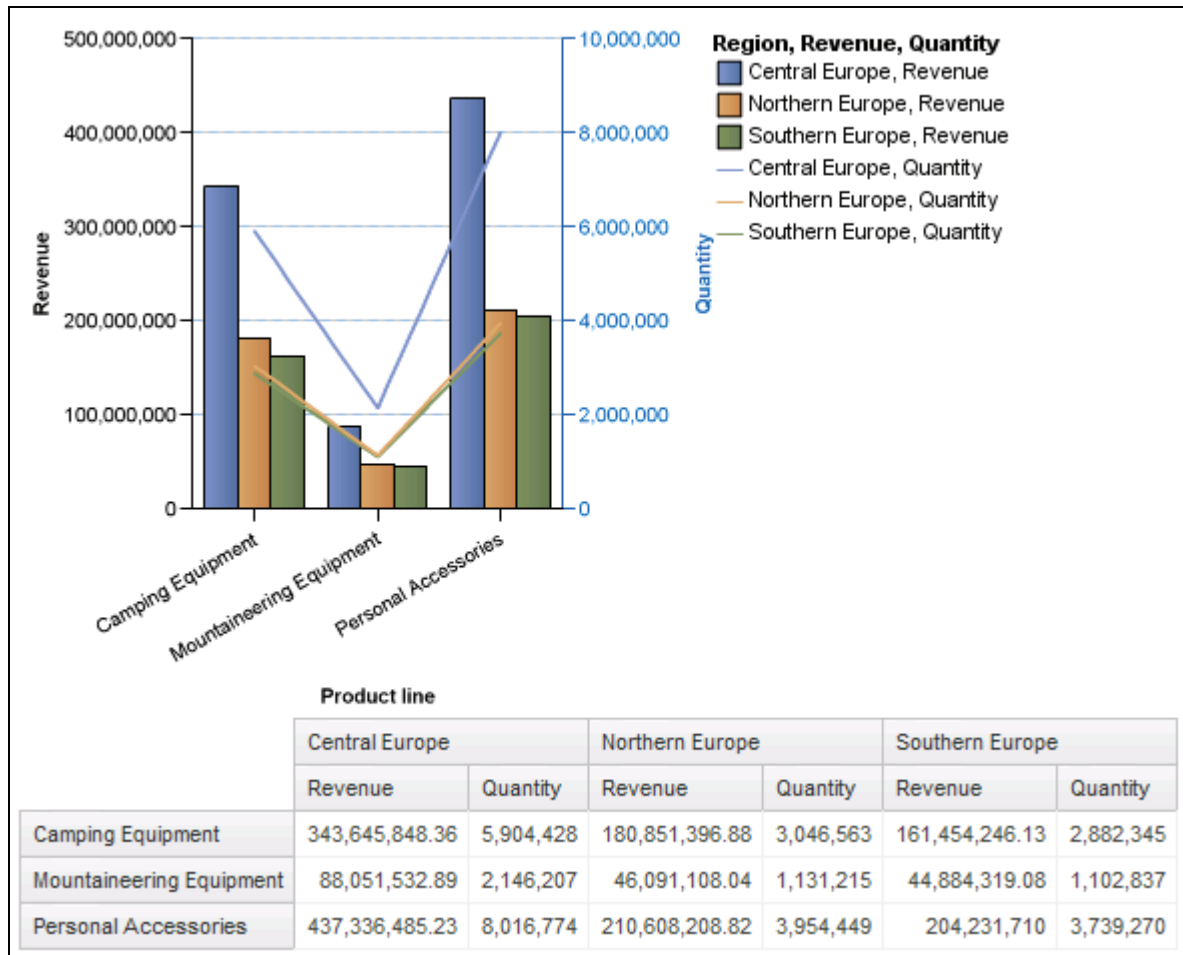
**[Product line] IN ('Camping Equipment', 'Mountaineering Equipment', 'Personal Accessories')**

Hint: Use **Select Multiple Values** from the toolbar.

5. Click **Validate**, and then **OK**.
6. Add another filter using **Region** as follows:  
**[Region] IN ('Northern Europe', 'Central Europe', 'Southern Europe')**
7. Click **OK** twice.

8. Click anywhere in the **Crosstab**.
9. Repeat steps 2 - 5 to add the same filters to the crosstab.
10. On the toolbar, click **Run Report**.

The result appears as shown below:



11. Close **IBM Cognos Viewer**.

#### Instructor Note

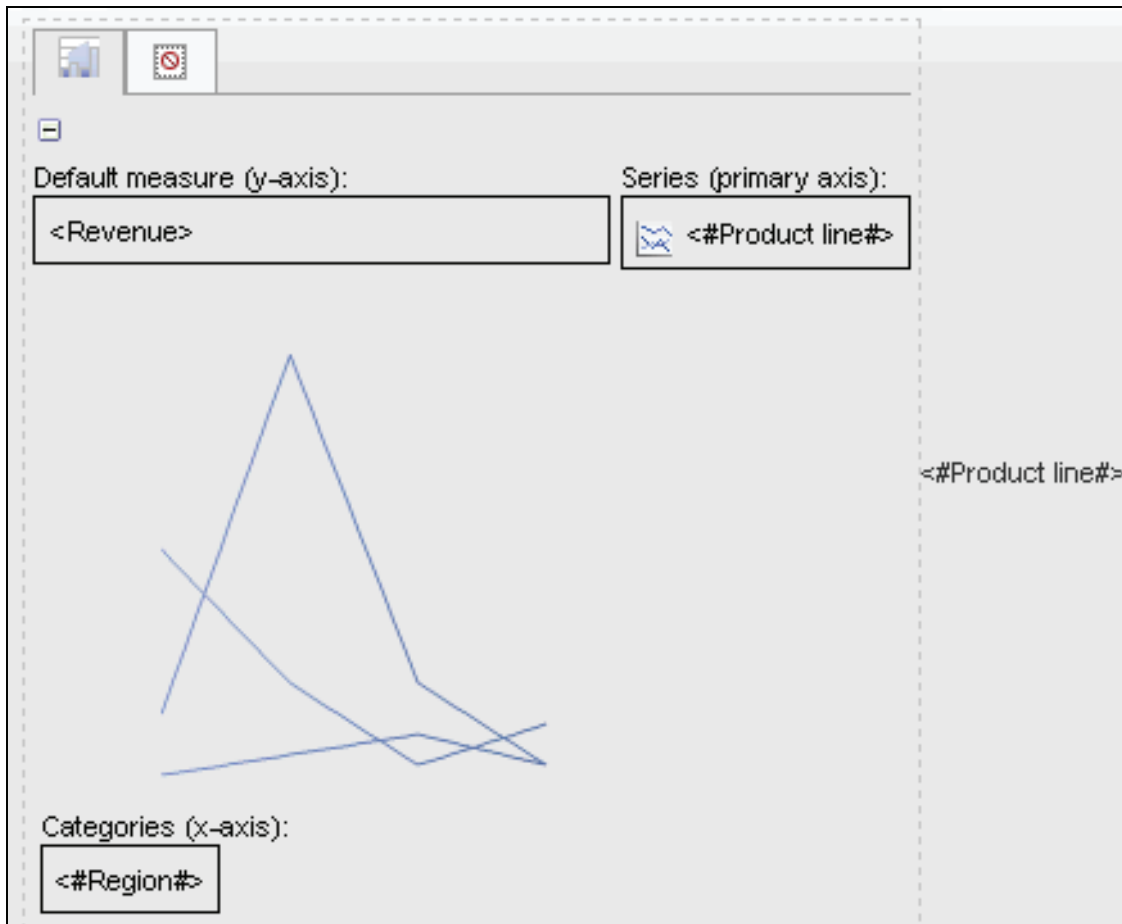
Step 9: If the students have changed the Crosstab Query to Query 1 (see the IG notes on the previous page), they will not have to repeat steps 2–5 because the filter will be applied to both the chart and the crosstab. It is more efficient to send down one query to the database instead of multiple queries that return the same data.

Working with queries is further discussed in *IBM Cognos Report Studio: Author Professional Report*

## Task 5. Add microchart to crosstab to preview data in a chart.

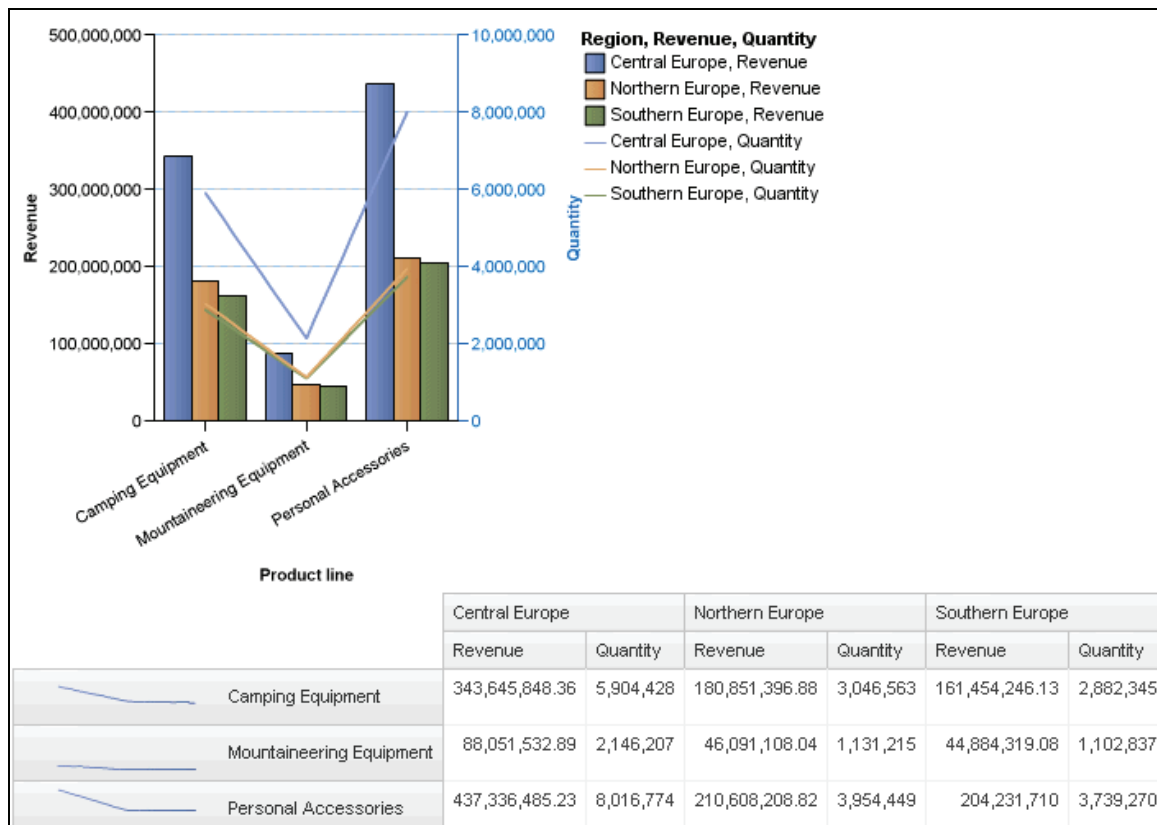
1. In the crosstab, right-click **Product line**, and then click **Insert Chart for Row Data**.
2. In the left pane, click **Microchart**, accept the default microchart (**Line**), and then **OK**.
3. In the **Categories (x-axis)** section of the microchart, click **Quantity** and then click **Delete**.
4. In the **Categories (x-axis)** section of the chart, click **Revenue** and then drag it to the **Default Measure (y-axis)**.

The results appear as follows:



5. On the toolbar, click **Run Report**.

The results appear as follows:



6. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next demo.

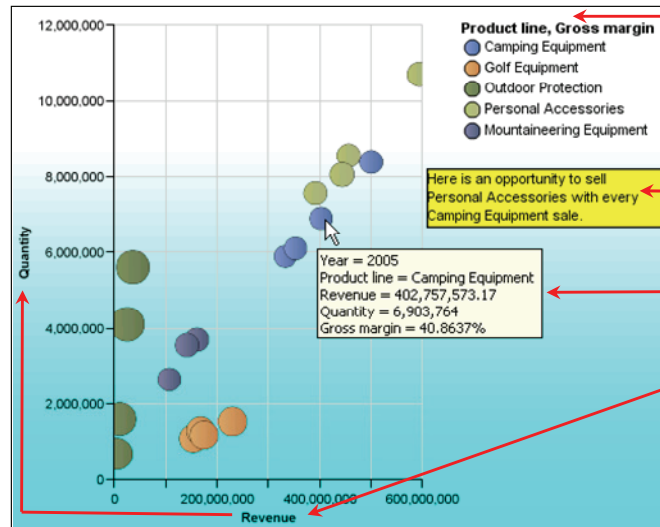
### Results:

You created a combination chart with two measures on different Y axes and then added a crosstab to see product line sales revenue and quantity by region. You focused on Camping Equipment, Mountaineering Equipment, and Personal Accessories sales for the three European sales regions. You have added a microchart to the crosstab for a quick overview of product line revenue for all regions specified.



## Customize Charts

- Enhance the appearance and functionality of reports by using custom elements.



Apply a  
graduated  
background  
color

Add Notes

Display Tool  
Tips

Rename axes

Cognos.  
software

© 2010 IBM Corporation

Custom elements such as color schemes, rescaling of axes numbers, renaming axes, and displaying details will enhance reports.

Notes hide whatever is under them, so it is important to properly position them in the chart.

**INTERACTION - Whiteboard:** Ask participants what customizations do they foresee needing for their companies. List any responses on the whiteboard.

## Demo 4: Create and Customize a Bubble Chart to Compare Multiple Measures (Optional)

### Purpose:

A manager wants a graph showing the performance of each product line, for use in a presentation. The chart must show the revenue, quantity, and margin of product lines for each year over a three-year period. You have been asked to use a green color scheme so that the chart will coordinate with other reports and charts used in the presentation.

Server: localhost  
 User/Password: brettanf/Education1!  
 Studio: Report Studio  
 Package: Go Data Warehouse (query)  
 Report Type: Bubble Chart  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)



### Task 1. Create a bubble chart report.

1. In the **Insertable Objects** pane, add the following query items to the chart:  
**Under Measure:**
  - Sales fact → Revenue to X-axis
  - Sales fact → Quantity to Y-axis
  - Sales fact → Gross margin to Bubble Measure
  - Products → Product line to Series
  - Time → Year to Categories

## Task 2. Customize the Bubble chart size and colors.

1. Click the chart background, and then in the **Properties** pane, under **Positioning**, double click **Size & Overflow**.
2. In the **Height** box, type **400** and in the **Width** box, type **500**.
3. Under **Color & Background**, double-click on **Background Effects**.
4. Select the **Fill** check box.
5. Click **Color** to bring up the color palette, click **Olive**, and then click **OK**.
6. Click **New** to add another color.
7. Repeat steps 4 and 5 and ensure **Teal** is selected as the second color.
8. In the **Angle** box, type **90** and then click **OK**.

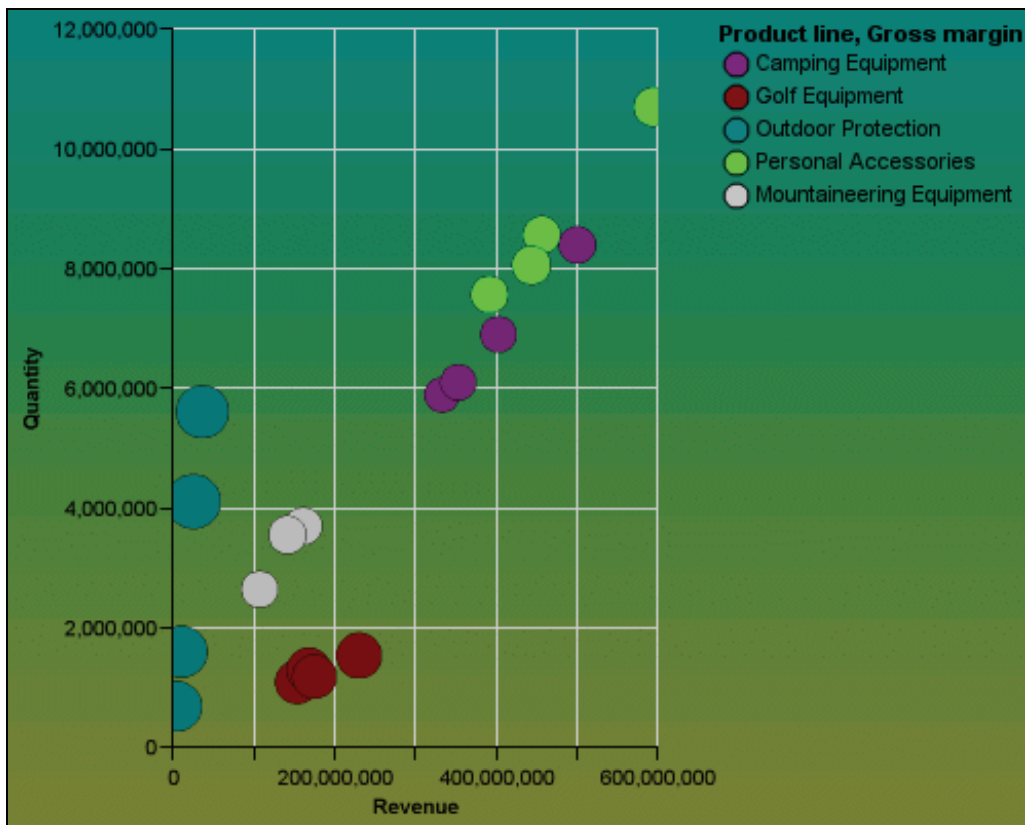
Now you want to change the bubble colors.

9. Double-click the cell next to the **Palette** property.
10. In the **Palette** dialog box, click **New Palette Entry** , and then click **Color**.
11. On the **Named Colors** tab, double-click **Purple**, and then click **Move Palette Entry Up** .
12. Repeat steps 9 and 10 to add **Maroon**, **Teal**, **Lime**, and **Silver** to the palette of bubble colors, and then click **OK**.

**INTERACTION - Toolbar Emoticons > Raise Hand:** Have the participants choose the fill colors.

13. On the toolbar, click **Run Report**.



The results appear as follows:



Personal Accessories has the largest revenue and sells in the largest quantities.

14. Close **IBM Cognos Viewer**.

### Task 3. Add descriptive information.

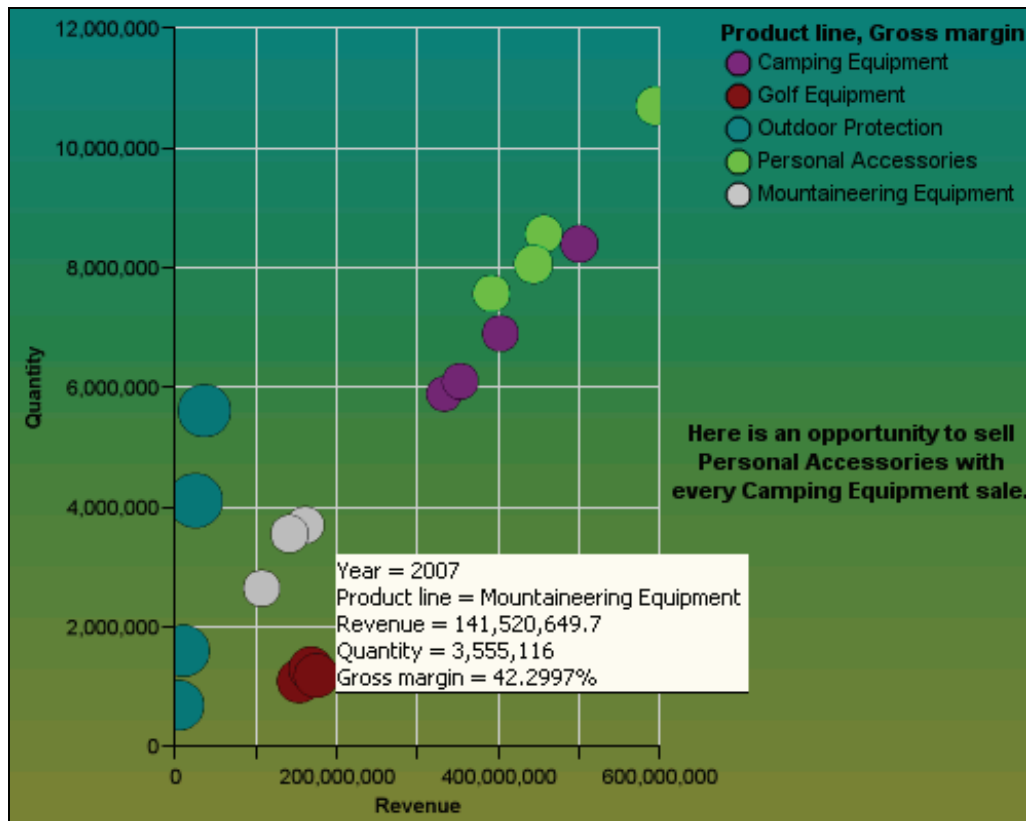
1. Under **Chart Annotations**, double-click **Notes**, click **Add** , replace the text with: **Here is an opportunity to sell Personal Accessories with every Camping Equipment sale.**
2. Click **OK**, and then click **OK** to close the **Notes** dialog box.  
The New Note object is added to the chart.
3. Click the **Note**  icon.  
In the Properties pane, notice that this object is called “Note”.
4. In the **Properties** pane, **Positioning**, double-click **Position**.
5. In the **Position** section, type **320** into the lower left hand text box (left position), type **200** into the upper right hand text box (height position), and then click **OK**.
6. Double-click **Size & Overflow**, type **50** for **Height**, and **180** for **Width**.
7. Double-click **Font**, set **Size** to **8pt**, and **Weight** to **Bold**.
8. Click **OK**.

## Task 4. Run the report.

1. On the toolbar, click **Run Report**.
2. Point to any of the bubbles with your cursor.

A tool tip appears displaying all relevant data.

The results appear as follows:



3. Close **IBM Cognos Viewer**.

Leave Report Studio open for the next workshop.

### Results:

You created a graphical presentation showing the performance of each product line. The chart shows the revenue, quantity, and gross margin for each product line. It displays the underlying data that the bubbles represent. To enhance the report, you added colors and descriptive information.

## Summary

- At the end of this course, you should be able to:
  - create charts containing peer and nested columns
  - present data using new chart type options
  - add context to charts
  - create and reuse custom chart palettes
  - present key data in a single dashboard report

**INTERACTION - Check Sticker:** Check mark each objective as it is summarized.

## Workshop 1: Create a Dashboard Report

You want to create an interactive report that lets users examine a variety of important sales data in one view. To do this, you want to create a dashboard report that contains gauge charts, a combination chart, and a crosstab report.

To accomplish this:

- Using the GO Data Warehouse (query) package, the Sales and Marketing (query) folder, and the Sales (query) namespace, add a gauge chart, a combination chart, and a crosstab to a blank report.
- Add data to the gauge chart to compare gross profit generated by different product lines in each region.
- Add data to the column chart to compare revenue by retailer type and regions for each product line.
- Add data to the crosstab to examine the gross margin for product lines in years and regions.
- Enhance the visual appeal of the charts.
- Format the combination chart:
  - Set the chart type for the Region data to Line, set the palette to Contemporary, set the width to 550 pixels.
  - Title: Product Lines: Revenue by Retailer Type and Region, Font: Arial, 12, Bold.
  - Hide the horizontal axis title.



- Format the gauge chart:
  - Set the width for the gauge chart to 550 pixels.
  - Title: Gross Profit for Product Lines by Region, Font: Arial, 12, Bold.
  - Hide the horizontal axis title.

For more detailed information outlined as tasks, see the Task Table on the next page.

For the final results, see the Workshop Results section that follows the Task Table.

## Workshop 1: Task Table

### Task 1: Add charts and a crosstab to a blank report.

Where to Work	Hints
GO Data Warehouse (query) package	<ul style="list-style-type: none"> <li>• Create a blank report</li> </ul>
Sales and Marketing (query) folder, Sales (query) namespace Insertable Objects pane	<ul style="list-style-type: none"> <li>• Add a gauge chart</li> <li>• Add a combination chart to the right of the gauge chart.</li> </ul>
Toolbox tab	<ul style="list-style-type: none"> <li>• Add a crosstab below the two charts.</li> </ul>

### Task 2: Add data to the reports.

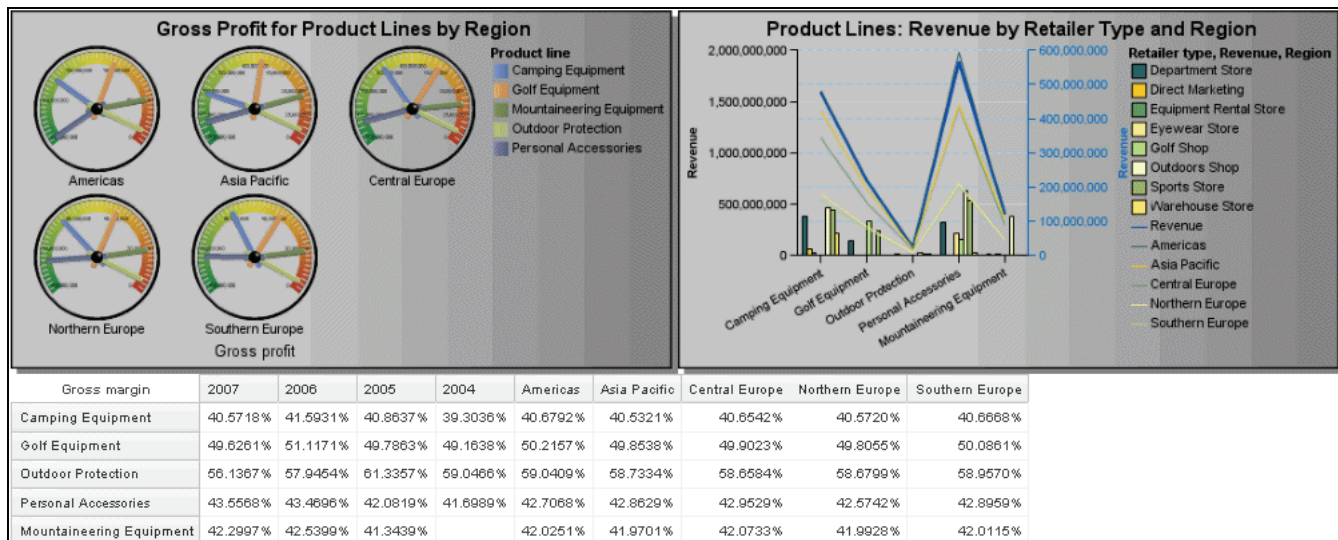
Where to Work	Hints
Insertable Objects pane	<ul style="list-style-type: none"> <li>• Gauge chart: Measures: Gross profit, Needles: Product line, Gauges: Region.</li> <li>• Combination chart: Measure: Revenue, Category: Product line, Series: Retailer type with Region as a peer.</li> <li>• Crosstab: Measure: Gross margin, Rows: Product line, Columns: Year with Region as a peer.</li> </ul>
Source tab	<ul style="list-style-type: none"> <li>• Sort Year in descending order.</li> </ul>

<b>Task 3: Enhance the visual appeal of the charts.</b>	
<b>Where to Work</b>	<b>Hints</b>
Select both charts  Properties pane\ Color & Background\ Generated Background Image	<ul style="list-style-type: none"> <li>• Apply gradient fill for chart background.</li> <li>• Border: Black, Corner radius =10</li> <li>• Fill: Silver, Position=45; Gray, Position=100; Angle=90</li> <li>• Select Drop Shadow</li> </ul>
<b>Task 4: Format the combination chart.</b>	
<b>Where to Work</b>	<b>Hints</b>
Bar object  Properties pane	<ul style="list-style-type: none"> <li>• Set the chart type for Region to Line.</li> <li>• Set the palette to Contemporary.</li> <li>• Set the Height to 300 and Width to 550 pixels.</li> <li>• Add a report title called Product Lines: Revenue by Retailer Type and Region, and set the font to Arial, 12, Bold.</li> <li>• Hide the horizontal axis title.</li> </ul>
<b>Task 5: Format the gauge chart.</b>	
<b>Where to Work</b>	<b>Hints</b>
Properties pane  Toolbox tab	<ul style="list-style-type: none"> <li>• Set the Height to 300 and Width to 550 pixels.</li> <li>• Add a report title called Gross Profit for Product Lines by Region, and set the font to Arial, 12, Bold.</li> <li>• Hide the horizontal axis title.</li> </ul>

If you need more information to complete a task, see the Step-by-Step Instructions at the end of the workshop.

## Workshop 1: Workshop Results

After completing Task 5, the results appear as follows:



## Workshop 1: Step-by-Step Instructions

Server: localhost  
 User/Password: brettonf/Education1!  
 Studio: Report Studio  
 Package: Go Data Warehouse (query)  
 Report Type: Blank  
 Folder: Sales and Marketing (query)  
 Namespace: Sales (query)

### Task 1. Add charts and a crosstab to a blank report.

1. In the **Insertable Objects** pane, click the **Toolbox** tab, and then drag a **Chart** to the work area.
2. In the left pane, click **Gauge**, accept the default gauge chart (Gauge Chart with Bevelled Border), and then click **OK**.
3. In the **Insertable Objects** pane, drag a second **Chart** to the work area, to the right of the gauge chart.
4. In the left pane, click **Combination**, accept the default combination chart (Clustered Bar and Clustered Line), and then click **OK**.
5. Drag a **Crosstab** to the work area below the two charts.

### Task 2. Add data to the reports.

1. In the **Insertable Objects** pane, click the **Source** tab, expand **Sales fact**, and then drag **Gross profit** to the **Default measure** drop zone of the gauge chart.
2. Expand **Products**, and then drag **Product line** to the **Gauge Axes** drop zone of the gauge chart.
3. Expand **Retailers**, and drag **Region** to the **Categories (gauges)** drop zone of the gauge chart.
4. In the **Insertable Objects** pane, from **Sales fact**, drag **Revenue** to the **Default measure (y-axis)** drop zone of the combination chart.

5. From **Products**, drag **Product line** to the **Category (x-axis)** drop zone of the combination chart.
6. Expand **Retailers**, and drag **Retailer type** to the **Series (primary axis)** drop zone of the column chart.
7. Click the combination chart background.
8. In the **Properties** pane, under **General**, double-click **Combinations**, and then select the **Secondary Axis** check box.
9. Click **New**, select **Line**, and then click **OK**.
10. With the **Secondary Axis** check box still selected, under **Combinations**, ensure that **Clustered Bar** is selected, and then click **Delete**.
11. Click **OK**.
12. From **Retailers**, in the **Insertable Objects** pane, drag **Region** to the **Series (secondary axis)** drop zone of the combination chart.
13. From **Sales fact**, in the **Insertable Objects** pane, drag **Gross margin** to the **Measures** drop zone of the crosstab.
14. From **Products**, drag **Product line** to the **Rows** drop zone.
15. From **Time**, drag **Year** to the **Columns** drop zone.
16. Sort **Year** as **Descending**.
17. From **Retailers**, drag **Region** to the **Columns** drop zone of the crosstab to the right (peer) of **Year**.

### Task 3. Enhance the visual appeal of the charts.

1. Ctrl-click both chart backgrounds to select them, and then in the **Properties** pane, under **Color & Background**, double-click **Background Effects**.
2. Select the **Border** check box, select **Black** from the **Color** list, and then in the **Corner radius** box, type **10**.
3. Select the **Fill** check box, change the existing color to **Silver**, and then in the **Position** box, type **45**.
4. Click **New** to add a new color, change it to **Gray**, and then in the **Position** box, type **100**.
5. In the **Angle** box, type **90**.
6. Select the **Drop Shadow** check box, and then click **OK** accept the defaults.
7. On the toolbar, click **Run Report** to verify the results, and then close **IBM Cognos Viewer**.

### Task 4. Format the combination chart.

1. In the Combination chart, click the **Series (primary axis)** bar icon, and then in the **Properties** pane, under **Color & Background**, double-click **Palette**.
2. Click **Chart Palette Presets**, select **Contemporary style palette**, and then click **OK**.
3. Click the **Series (Secondary Axis)** line icon and then in the **Properties** pane, under **Color & Background**, double-click **Palette**.
4. In the **Chart Palette Presets** list, click **Contemporary style palette**, and then click **OK**.

5. Click the combination chart background, and then in the **Properties** pane, under **Positioning**, double-click **Size & Overflow**.
6. In the **Height** box, type **300**, in the **Width** box type **550**, and then click **OK**.
7. In the **Properties** pane, under **Chart Titles**, click **Title**, and then in the list, click **Show**.
8. In the combination chart, double-click the chart title text, type **Product Lines: Revenue by Retailer Type and Region** and then click **OK**.
9. Above the **Properties** pane, click **Select Ancestor**, click **Chart Title**, and then on the toolbar, click **Arial, 12 pt, Bold**.
10. In the combination chart, expand **Axis titles**, click the horizontal axis title, in the **Properties** pane, under **General**, click the **Default Title** cell, and then in the list, click **No**.

## **Task 5. Format the gauge chart.**

1. Click the background of the gauge chart.
2. In the **Properties** pane, under **Positioning**, double-click the **Size & Overflow** cell, in the **Height** box type **300** and **Width** box type **550**, and then click **OK**.
3. In the **Properties** pane, under **Chart Titles**, click the **Title** cell, and then click **Show**.
4. In the gauge chart, double-click the chart title text, type **Gross Profit for Product Lines by Region** and then click **OK**.



5. Click the **Select Ancestor** button from the **Properties** title bar, and select **Chart Title**, and then on the toolbar, click **Arial, 12 pt, Bold**.
6. In the gauge chart, expand **Axis titles**, click the horizontal axis title, and in the **Properties** pane, under **General**, click **Default Title**, and then in the list click **No**.
7. In the gauge chart, click the **Gauge Axes** icon.
8. In the **Properties** pane, under **General**, double-click **Axis Angles**, and then in **Axis direction** list, click **Counterclockwise**.
9. In the **Axis start angle** box, type **320**, in the **Axis End Angle** box, type **220**, and then click **OK**.
10. Under **Color & Background**, double-click **Gauge Axis Colors**, and then click the center color (yellow).
11. In the **Position** box, type **50**, and then click **OK**.
12. On the toolbar, click **Run Report**.
13. Close **IBM Cognos Viewer**, close **Report Studio** without saving changes, and then close **Internet Explorer**.

